Case Report

Impact of an Eight-Week Intervention Program With Thermomix Cooking, Healthy Breakfast and Sufficient Daily Physical Activity on the Health Status of an Obese Adult: A Descriptive Pilot Study

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Impact of an Eight-Week Intervention Program with Thermomix Cooking, Healthy Breakfast and Sufficient Daily Physical Activity on the Health Status of an Obese Adult: A Descriptive Pilot Study

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Abstract: In increasingly stressful times, many people are increasingly turning to fast food, neglecting to drink enough fluids and often forgoing regular exercise. The fast tempo of everyday life leaves little room for healthy habits, such as cooking at home, which means that a conscious and balanced diet takes a back seat. A descriptive pilot study was conducted to investigate the effects of an eight-week intervention program. This program included the daily intake of breakfast, cooking at home, adequate fluid intake and daily physical activity. The aim of the study was to evaluate the effects of these measures on the participants' body weight and general health. During the 56-day intervention, there was a steady trend towards weight reduction, and at the end of the intervention phase, a significant weight reduction in the test person could be observed. At the end of the intervention, the participant was still 45 years old, measured a body weight of 73.4 kg, which represents a BMI of 25.1 and is classified as slightly overweight. The results of the pilot study demonstrate clearly that the health mix of regular cooking at home, a daily breakfast, a daily physical activity session and sufficient fluid intake can be an effective booster for weight loss in adults. This combination has not only led to a significant reduction in body weight, but has also shown that simple, everyday measures can have a profound effect on health.

Keywords: fitness; obesity; home cooking; healthy lifestyle; body mass index

Introduction

In recent decades, people's eating habits have changed drastically around the world. [1-3] One of the most striking developments is the increasing consumption of fast food [4,5]and the associated decline in cooking at home. [1,6,7] This trend is due to a variety of factors that are deeply rooted in the social, economic and cultural changes of modern society. [8-11]

One major reason for the rise in fast food consumption is the hectic lifestyle that many people lead today. [6,12] In an increasingly fast-paced world, time and convenience have become precious commodities, so many people simply don't have the time or energy to prepare a meal after a busy day due to work commitments, long hours and numerous other activities. [13,14]

Another factor is the increasing availability and aggressive marketing of fast food chains.[15] Fast food restaurants can now be found virtually everywhere - in urban areas, along highways, in shopping centers and even in smaller towns.[16]

However, more fast food consumption has significant health consequences.[4,17] Fast food is often high in calories, saturated fats, sugar and salt, but low in nutrients such as vitamins, minerals and fiber. Frequent consumption of these foods can lead to a number of health problems. [18,19] These include overweight and obesity, which have now become global epidemics.[20-22] Obesity, in turn, increases the risk of a variety of diet-related diseases, such as cardiovascular disease, type 2 diabetes, high blood pressure and certain cancers.[23-25]

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To counteract stress, hectic lifestyles and fast food consumption, cooking at home should be made easier and more efficient.[26-28] The Thermomix kitchen appliance offers an ideal solution here by combining numerous kitchen appliances in one and making it easy to prepare fresh, healthy meals.[29,30] In times when unhealthy eating is often the result of a lack of time, the Thermomix helps you to eat a balanced diet.[29,30] Combined with a healthy breakfast[31] and daily exercise[32], this can make a lasting contribution to a healthier lifestyle.[29,30,33]

A descriptive pilot study was conducted to evaluate the effectiveness of these measures. The aim of the study was to assess the impact of an eight-week intervention program, which included the use of a Thermomix appliance for meal preparation, regular consumption of a healthy breakfast, adequate hydration and daily physical activity, on the health outcomes of an overweight adult individual.

Methods

The main aim of the study was to assess the effect of this general intervention on body mass index and how it could potentially improve it. A pilot study, designed to collect information for a large-scale planned intervention, was started with a middle-aged male obese adult in spring 2024. All studies were conducted in accordance with the Declaration of Helsinki.

Selection of Study Participant

The author of this study made himself available as study participant to provide the best possible control of the compliance with all intervention contents.

Procedures

A comprehensive intervention program was implemented, which included daily cooking and eating meals at home, consistent fluid intake throughout the day, a balanced breakfast and a daily physical activity session. Regular measurements were taken to monitor changes in body weight, both in the morning immediately after getting up and in the evening before going to bed.

Cooking and Eating Meals at Home

Lunches were prepared using the Thermomix TM6 (Vorwerk brand). Cooking with a Thermomix appliance offers a number of benefits that make preparing meals at home much easier and more efficient:

1. **Multifunctionality**: The Thermomix combines numerous kitchen appliances in one. It can chop, mix, knead, cook, steam and much more. This saves space in the kitchen and makes cooking more versatile.
2. **Time saving**: As the Thermomix takes over many tasks that would normally have to be done manually or with several appliances, it significantly reduces the time needed to prepare meals.
3. **Easy to use**: The intuitive user interface and step-by-step instructions mean that even beginners can easily prepare complex dishes.
4. **Healthy eating**: The Thermomix allows you to prepare fresh, healthy meals with minimal effort. This promotes a balanced diet and helps to avoid processed foods.
5. **Precision**: The precise temperature setting and integrated scales allow recipes to be implemented with precision, which is particularly important for sophisticated dishes.

The lunches were selected using the Cookidoo App[34] by the Vorwerk company, which offers a wide range of recipes. Particular attention was given to ensuring a balanced diet, with fish, meat and vegetables forming the main components of the lunches each week. A detailed overview of the selected lunches is shown in Table 1.

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Table 1. Overview of the selected lunches in the intervention phase.

Date	Lunch
26.02.2024	Potato-Cauliflower Casserole
27.02.2024	Vegetable Couscous with Dates and Feta
28.02.2024	Chicken with Bell Pepper Vegetables
29.02.2024	Caribbean Cauliflower Curry with Sweet Potatoes
01.03.2024	Chickpea-Vegetable Curry with Rupp Gouda
02.03.2024	Coconut Soup Tom Kha Gai
	Mushroom Ragout with Green Beans
03.03.2024	Quinoa Risotto Provençale
04.03.2024	Broccoli-Gorgonzola Pasta
05.03.2024	Creamy Ham Noodles Au Gratin
06.03.2024	Fennel Risotto
07.03.2024	Hunter Sauce with Dumplings
08.03.2024	Salmon on Leek-Cream Cheese Bed with New Potatoes
09.03.2024	Lasagna
10.03.2024	Pizza Soup
	Quinoa Salad with Vegetables and Herbs
11.03.2024	Sole Rolls on Saffron Risotto
12.03.2024	Super Quick Margherita Pizza
13.03.2024	Tortellini in Ham-Cream Sauce
14.03.2024	Potato Goulash
	Meatless Meatloaf
15.03.2024	Vegetable Fritters from the Baking Tray
	Crepes with Apricot Jam
16.03.2024	Pizza Rolls
	Ham-Cheese Sauce
17.03.2024	Spinach Strudel with Potatoes
18.03.2024	Potato-Apple Ragout with Sausages
19.03.2024	Strawberry-Basil Ice Cream
20.03.2024	Potato-Celery Gratin
	Rice Noodles with Vegetable Curry
21.03.2024	Coconut Soup Tom Kha Gai
	Rice Noodles with Vegetable Curry
22.03.2024	Rice Noodles with Vegetable Curry
23.03.2024	Green Smoothie
	Hawaiian Quiche
24.03.2024	Strawberry-Basil Ice Cream
	Carrot-Mango Soup with Coconut
	Spinach Dumplings on Tomato Ragout
25.03.2024	Butter Chicken with Pumpkin and Basmati-Wild Rice Mix
26.03.2024	Creamy Pasta Casserole with Tomatoes

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27.03.2024	Meatloaf - Stefanie Roast
28.03.2024	Jambalaya
29.03.2024	Kohlrabi in Dill Sauce with New Potatoes and Sausages
30.03.2024	Salmon on Leek-Cream Cheese Bed with New Potatoes
	Carrot Cake with Cream Cheese Frosting
31.03.2024	Strawberry-Basil Ice Cream
	Chestnut Cream Soup
	Asparagus and Potatoes with Hollandaise Sauce
01.04.2024	Lasagna
02.04.2024	Spinach Cannelloni
03.04.2024	Grandma's Carinthian Reindling (a type of cake)
04.04.2024	Apple-Celery Cream Soup
05.04.2024	Oven Nuggets
06.04.2024	Basil Pesto (with Spaghetti)
07.04.2024	Bulgur-Chickpea Salad
08.04.2024	Creamy Pasta Casserole with Tomatoes
09.04.2024	White Pizza with Pesto and Mozzarella
10.04.2024	Beef Roulades with Cheese-Bacon Filling
11.04.2024	Pork Strips with Rice and Broccoli
12.04.2024	Tomato Pasta with Vegetables and Feta
13.04.2024	Pike-Perch with Saffron Sauce, Rice, and Braised Tomatoes
	Lemonade with Crushed Ice
14.04.2024	Basil Pesto (with Spaghetti)
15.04.2024	Meatloaf - Stefanie Roast
16.04.2024	Vegetable Döner
17.04.2024	Potato-Apple Ragout with Sausages
18.04.2024	Salmon with Dill-Mustard Sauce on Pasta
	Vegetarian Pizza
19.04.2024	Bell Pepper-Salami Quiche
	Vegetarian Stuffed Eggplant with Saffron Yogurt
20.04.2024	Creamy Wild Garlic Polenta with Chicken
	Vegetarian Linguine Carbonara
21.04.2024	Spinach Dumplings on Asparagus-Morel Ragout
	Tomato-Garlic Pasta

A detailed overview of the components of the individual lunches is available in the Cookidoo App[34] by the Vorwerk company.

Consistent Fluid Intake Throughout the Day

Care was taken to ensure that sufficient fluid intake was balanced throughout the day. According to current health recommendations, an adult should consume around 2 to 3 liters of fluid per day[35], with the exact amount depending on individual factors such as body weight, physical activity and climatic conditions.

A detailed overview of the daily fluid intake is shown in Table 2.

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Table 2. Overview of the fluid intake.

Date	Water or diluted juice, in liter						Total [liter]	Cup of coffee
	0.5 liter	0.5 liter	0.5 liter	0.5 liter	0.5 liter	0.5 liter		
26.02.2024	0.5	0.5	0.5	0.5			2.0	2
27.02.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	2
28.02.2024	0.5	0.5	0.5	0.5			2.0	1
29.02.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
01.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
02.03.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	1
03.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
04.03.2024	0.5	0.5	0.5	0.5			2.0	2
05.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	3
06.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
07.03.2024	0.5	0.5	0.5	0.5			2.0	1
08.03.2024	0.5	0.5	0.5	0.5			2.0	2
09.03.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	2
10.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	1
11.03.2024	0.5	0.5	0.5				1.5	2
12.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	3
13.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
14.03.2024	0.5	0.5	0.5	0.5			2.0	1
15.03.2024	0.5	0.5	0.5	0.5			2.0	3
16.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
17.03.2024	0.5	0.5	0.5	0.5			2.0	2
18.03.2024	0.5	0.5	0.5				1.5	2
19.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
20.03.2024	0.5	0.5	0.5				1.5	2
21.03.2024	0.5	0.5	0.5				1.5	1
22.03.2024	0.5	0.5	0.5	0.5			2.0	1
23.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
24.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
25.03.2024	0.5	0.5	0.5				1.5	2
26.03.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	2
27.03.2024	0.5	0.5	0.5	0.5			2.0	1
28.03.2024	0.5	0.5	0.5	0.5			2.0	2
29.03.2024	0.5	0.5	0.5	0.5	0.5		2.5	1
30.03.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	3
31.03.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	2
01.04.2024	0.5	0.5	0.5				1.5	2
02.04.2024	0.5	0.5	0.5	0.5			2.0	2
03.04.2024	0.5	0.5	0.5	0.5			2.0	2

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04.04.2024	0.5	0.5	0.5	0.5			2.0	2
05.04.2024	0.5	0.5	0.5	0.5	0.5		2.5	1
06.04.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
07.04.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
08.04.2024	0.5	0.5	0.5	0.5			2.0	1
09.04.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	2
10.04.2024	0.5	0.5	0.5	0.5			2.0	2
11.04.2024	0.5	0.5	0.5	0.5			2.0	2
12.04.2024	0.5	0.5	0.5				1.5	1
13.04.2024	0.5	0.5	0.5	0.5	0.5	0.5	3.0	2
14.04.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
15.04.2024	0.5	0.5	0.5				1.5	2
16.04.2024	0.5	0.5	0.5	0.5	0.5		2.5	1
17.04.2024	0.5	0.5	0.5	0.5			2.0	2
18.04.2024	0.5	0.5	0.5	0.5			2.0	2
19.04.2024	0.5	0.5	0.5	0.5			2.0	2
20.04.2024	0.5	0.5	0.5	0.5	0.5		2.5	2
21.04.2024	0.5	0.5	0.5				1.5	2

Balanced Breakfast

As part of the intervention, four different breakfast options were consumed in rotation, which were characterized by their quick preparation time. This made it possible to start the day healthy and energized, without additional stress in the morning.

- Breakfast 1 = 20 to 30 g of bread with cream cheese
- Breakfast 2 = Croissant filled/with jam
- Breakfast 3 = Soft-boiled egg with 20 to 30 g of bread
- Breakfast 4 = Organic sourdough bread roll without added sugar with a slice of Gouda

Daily Physical Activity Session

When selecting the daily exercise unit for adults, it is crucial that the intrinsic motivation is as high as possible. It is less important which specific activity is practiced, but rather that regular physical activity takes place at all. For this reason, the study participants were allowed to organize his exercise units according to his own needs and wishes, as long as they were physically feasible and personally motivating for him. A detailed overview of the physical activity carried out is given in Table 3.

Table 3. Overview of the daily activity session.

Date	Cycling on an ergometer	Hockey	Own body strength training
26.02.2024	55 min on average 170 Watt		
27.02.2024		1 hour 15 min	
28.02.2024	55 min on average 170 Watt		
29.02.2024	45 min on average 190 Watt		100 push up, 30 pull up
01.03.2024	55 min on average 200 Watt		
02.03.2024		1 hour 15 min	

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03.03.2024			100 push up, 30 pull up
04.03.2024	55 min on average 170 Watt		
05.03.2024		1 hour 15 min	
06.03.2024	55 min on average 170 Watt		
07.03.2024	45 min on average 190 Watt		100 push up, 30 pull up
08.03.2024	55 min on average 200 Watt		
09.03.2024		1 hour 15 min	
10.03.2024			100 push up, 30 pull up
11.03.2024	55 min on average 170 Watt		
12.03.2024		1 hour 15 min	
13.03.2024	55 min on average 170 Watt		
14.03.2024	45 min on average 190 Watt		100 push up, 30 pull up
15.03.2024	55 min on average 200 Watt		
16.03.2024		1 hour 15 min	
17.03.2024			100 push up, 30 pull up
18.03.2024	55 min on average 170 Watt		
19.03.2024		1 hour 15 min	
20.03.2024	55 min on average 170 Watt		
21.03.2024	45 min on average 190 Watt		100 push up, 30 pull up
22.03.2024	55 min on average 200 Watt		
23.03.2024		1 hour 15 min	
24.03.2024			100 push up, 30 pull up
25.03.2024	55 min on average 170 Watt		
26.03.2024		1 hour 15 min	
27.03.2024	55 min on average 170 Watt		
28.03.2024	45 min on average 190 Watt		100 push up, 30 pull up
29.03.2024	55 min on average 200 Watt		
30.03.2024		1 hour 15 min	
31.03.2024			100 push up, 30 pull up
01.04.2024	55 min on average 170 Watt		
02.04.2024		1 hour 15 min	
03.04.2024	55 min on average 170 Watt		100 push up, 30 pull up
04.04.2024	45 min on average 190 Watt		
05.04.2024	55 min on average 200 Watt		
06.04.2024		1 hour 15 min	
07.04.2024			100 push up, 30 pull up
08.04.2024	55 min on average 170 Watt		
09.04.2024		1 hour 15 min	
10.04.2024	55 min on average 170 Watt		
11.04.2024	45 min on average 190 Watt		100 push up, 30 pull up
12.04.2024	55 min on average 200 Watt		
13.04.2024		1 hour 15 min	

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14.04.2024			100 push up, 30 pull up
15.04.2024	55 min on average 170 Watt		
16.04.2024		1 hour 15 min	
17.04.2024	55 min on average 170 Watt		
18.04.2024	45 min on average 190 Watt		100 push up, 30 pull up
19.04.2024	55 min on average 200 Watt		
20.04.2024		1 hour 15 min	
21.04.2024			100 push up, 30 pull up

Dinner

A small amount of fresh ginger was eaten raw for dinner; only on a few days was a full meal eaten due to the job. A detailed overview of the evening meals is shown in Table 4.

Table 4. Overview of the daily dinner.

Date	Dinner	Date	Dinner
26.02.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g	25.03.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g
27.02.2024		26.03.2024	Stuffed calamari and tiramisu
28.02.2024		27.03.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g
29.02.2024		28.03.2024	
01.03.2024		29.03.2024	
02.03.2024		30.03.2024	Stuffed calamari
03.03.2024			Calamari fritti and profiterole
04.03.2024		31.03.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g
05.03.2024		01.04.2024	
06.03.2024		02.04.2024	
07.03.2024		03.04.2024	
08.03.2024		04.04.2024	
09.03.2024	Spare ribs with tiramisu	05.04.2024	
10.03.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g	06.04.2024	
11.03.2024		07.04.2024	
12.03.2024		08.04.2024	
13.03.2024		09.04.2024	
14.03.2024	Salami pizza	10.04.2024	
15.03.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g	11.04.2024	
16.03.2024		12.04.2024	
17.03.2024		13.04.2024	
18.03.2024		14.04.2024	
19.03.2024	Indian dinner (shana masala and avocado salad)	15.04.2024	
20.03.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g	16.04.2024	
21.03.2024		17.04.2024	
22.03.2024		18.04.2024	

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23.03.2024		19.04.2024	Stuffed calamari
24.03.2024		20.04.2024	Ginger cubes 0.3 x 0.3 cm in total approx. 10 to 15 g
		21.04.2024	

Outcomes

In this study, the primary outcome was the impact of the intervention program on body mass index (BMI). The anthropometric data included height (cm) and weight (kg). The measurements were taken daily in the morning directly after getting up and in the evening before going to bed. Height was measured to the nearest 0.1 cm with a portable stadiometer (SECA 213, Hamburg, Germany). Weight was measured to the nearest 0.1 kg using an electronic weighing scale (BOSCH PPW4202/01, Nuremberg, Germany). The BMI was calculated as weight in kilograms divided by height in metres squared.

Statistical Analysis

Descriptive statistics were calculated for each day (morning and evening). The analyzed data contain only complete data for all measured time points, and no imputation of the data was performed.

BMI cut-off values can be used to categorize weight into five categories (underweight BMI<18.5 kg/m^2, normal weight BMI 18.5 to 25.0 kg/m^2, overweight BMI≥25.0 kg/m^2, obese BMI≥30.0 kg/m^2, morbid obesity BMI≥35.0 kg/m^2).

All statistical analyses were performed in SPSS 29.0 (IBM SPSS Statistics 29, IBM, New York, USA).

Results

In the observation period from February 26, 2024 up to and including April 21, 2024, the test person cooked fresh food at home every day, ate breakfast, documented his liquid kit intake and took sufficient daily exercise.

At the start of the intervention, the participant was 45 years old, 171 cm tall and weighed 88.1 kg, which represents a BMI of 30.1 and must be classified as obese (Table 5).

During the 56-day intervention, there was a steady trend towards weight reduction, and at the end of the intervention phase, a significant weight reduction in the test person could be observed. At the end of the intervention, the participant was still 45 years old, measured a body weight of 73.4 kg, which represents a BMI of 25.1 and is classified as slightly overweight (Table 5, Figure 1).

Table 5. Overview of weight and BMI during the intervention phase.

Date	Body weight in the morning after getting up, in kg	Body weight in evening before going to bed, in kg	Comparison with the previous day		BMI for a body height of 171cm		Comparison with the previous day	
			morning	evening	morning	evening	morning	evening
26.02.2024	88.1	89.9			30.1	30.7		
27.02.2024	87.5	89.1	-0.6	-0.8	29.9	30.5	-0.2	-0.3
28.02.2024	87.1	88.7	-0.4	-0.4	29.8	30.3	-0.1	-0.1
29.02.2024	86.7	88.5	-0.4	-0.2	29.7	30.3	-0.1	-0.1
01.03.2024	86.3	88.0	-0.4	-0.5	29.5	30.1	-0.1	-0.2

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02.03.2024	85.9	87.7	-0.4	-0.3	29.4	30.0	-0.1	-0.1
03.03.2024	85.2	86.9	-0.7	-0.8	29.1	29.7	-0.2	-0.3
04.03.2024	85.2	86.8	0.0	-0.1	29.1	29.7	0.0	0.0
05.03.2024	84.8	86.6	-0.4	-0.2	29.0	29.6	-0.1	-0.1
06.03.2024	84.5	86.3	-0.3	-0.3	28.9	29.5	-0.1	-0.1
07.03.2024	84.2	86.0	-0.3	-0.3	28.8	29.4	-0.1	-0.1
08.03.2024	83.8	85.4	-0.4	-0.6	28.7	29.2	-0.1	-0.2
09.03.2024	83.5	85.1	-0.3	-0.3	28.6	29.1	-0.1	-0.1
10.03.2024	84.8	84.5	1.3	-0.6	29.0	28.9	0.4	-0.2
11.03.2024	83.1	84.8	-1.7	0.3	28.4	29.0	-0.6	0.1
12.03.2024	82.6	84.2	-0.5	-0.6	28.2	28.8	-0.2	-0.2
13.03.2024	81.9	83.7	-0.7	-0.5	28.0	28.6	-0.2	-0.2
14.03.2024	81.4	83.1	-0.5	-0.6	27.8	28.4	-0.2	-0.2
15.03.2024	82.7	82.9	1.3	-0.2	28.3	28.4	0.4	-0.1
16.03.2024	81.4	82.5	-1.3	-0.4	27.8	28.2	-0.4	-0.1
17.03.2024	80.6	82.1	-0.8	-0.4	27.6	28.1	-0.3	-0.1
18.03.2024	80.7	82.3	0.1	0.2	27.6	28.1	0.0	0.1
19.03.2024	80.4	82.0	-0.3	-0.3	27.5	28.0	-0.1	-0.1
20.03.2024	81.7	81.5	1.3	-0.5	27.9	27.9	0.4	-0.2
21.03.2024	79.7	81.4	-2.0	-0.1	27.3	27.8	-0.7	0.0
22.03.2024	79.4	81.0	-0.3	-0.4	27.2	27.7	-0.1	-0.1
23.03.2024	79.3	81.0	-0.1	0.0	27.1	27.7	0.0	0.0
24.03.2024	78.8	80.6	-0.5	-0.4	26.9	27.6	-0.2	-0.1
25.03.2024	79.0	80.5	0.2	-0.1	27.0	27.5	0.1	0.0
26.03.2024	80.2	80.4	1.2	-0.1	27.4	27.5	0.4	0.0
27.03.2024	78.4	80.0	-1.8	-0.4	26.8	27.4	-0.6	-0.1
28.03.2024	78.2	79.6	-0.2	-0.4	26.7	27.2	-0.1	-0.1
29.03.2024	77.9	79.5	-0.3	-0.1	26.6	27.2	-0.1	0.0
30.03.2024	79.4	79.3	1.5	-0.2	27.2	27.1	0.5	-0.1
31.03.2024	77.1	78.6	-2.3	-0.7	26.4	26.9	-0.8	-0.2
01.04.2024	77.0	78.6	-0.1	0.0	26.3	26.9	0.0	0.0
02.04.2024	76.8	78.4	-0.2	-0.2	26.3	26.8	-0.1	-0.1
03.04.2024	76.5	78.2	-0.3	-0.2	26.2	26.7	-0.1	-0.1
04.04.2024	76.4	78.2	-0.1	0.0	26.1	26.7	0.0	0.0
05.04.2024	76.2	77.8	-0.2	-0.4	26.1	26.6	-0.1	-0.1
06.04.2024	76.0	77.7	-0.2	-0.1	26.0	26.6	-0.1	0.0
07.04.2024	75.9	77.4	-0.1	-0.3	26.0	26.5	0.0	-0.1
08.04.2024	76.0	77.3	0.1	-0.1	26.0	26.4	0.0	0.0
09.04.2024	75.8	77.2	-0.2	-0.1	25.9	26.4	-0.1	0.0
10.04.2024	75.5	77.0	-0.3	-0.2	25.8	26.3	-0.1	-0.1
11.04.2024	75.5	77.0	0.0	0.0	25.8	26.3	0.0	0.0
12.04.2024	75.4	77.1	-0.1	0.1	25.8	26.4	0.0	0.0

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13.04.2024	75.3	76.8	-0.1	-0.3	25.8	26.3	0.0	-0.1
14.04.2024	75.0	76.4	-0.3	-0.4	25.6	26.1	-0.1	-0.1
15.04.2024	75.1	76.4	0.1	0.0	25.7	26.1	0.0	0.0
16.04.2024	74.9	76.3	-0.2	-0.1	25.6	26.1	-0.1	0.0
17.04.2024	74.5	76.0	-0.4	-0.3	25.5	26.0	-0.1	-0.1
18.04.2024	74.3	75.8	-0.2	-0.2	25.4	25.9	-0.1	-0.1
19.04.2024	74.0	75.7	-0.3	-0.1	25.3	25.9	-0.1	0.0
20.04.2024	74.6	75.3	0.6	-0.4	25.5	25.8	0.2	-0.1
21.04.2024	73.7	74.9	-0.9	-0.4	25.2	25.6	-0.3	-0.1
22.04.2024	73.4		-0.3		25.1		-0.1	

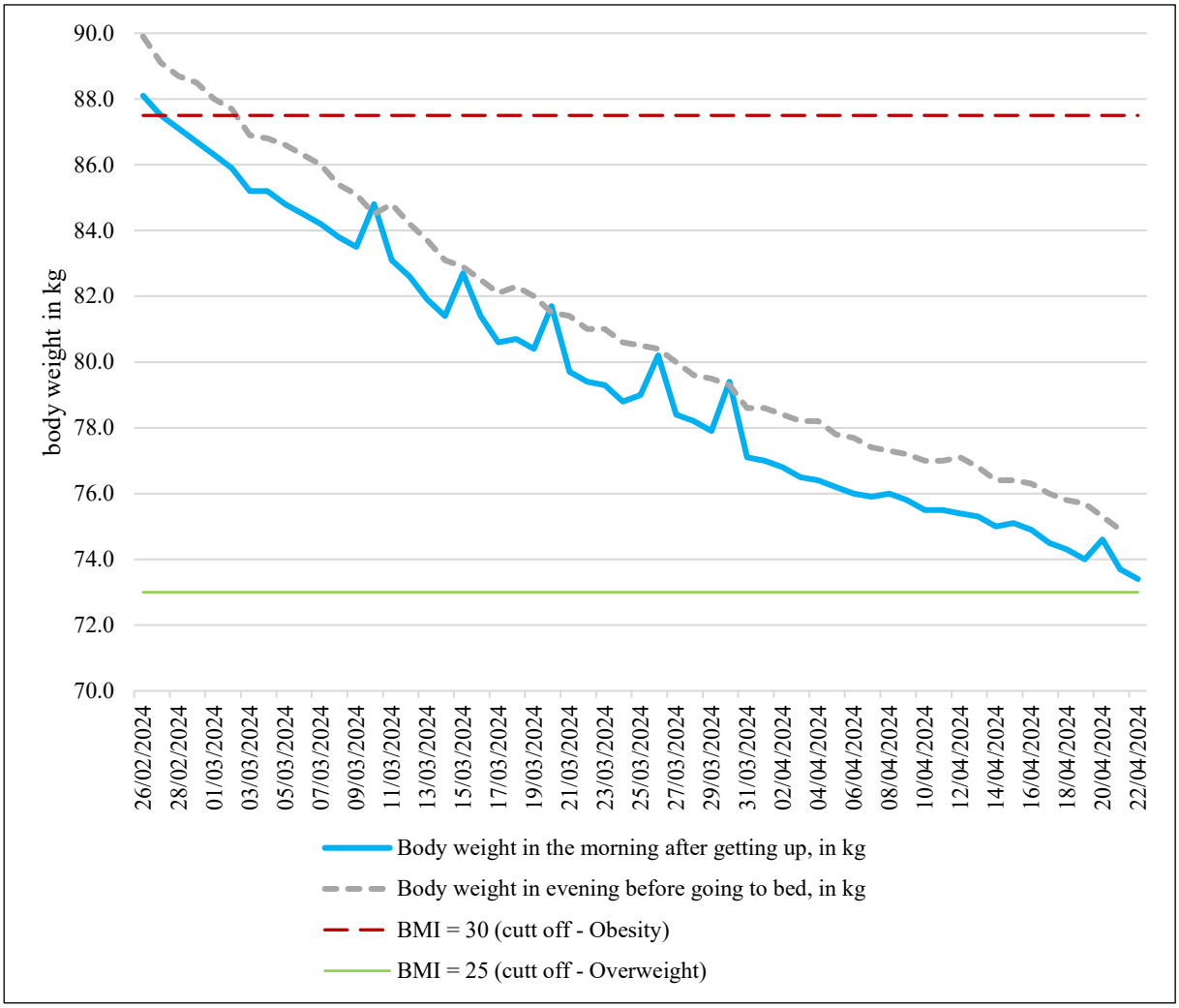

Figure 1. Descriptive course of weight reduction.

Discussion

Within eight weeks, the targeted intervention led to a significant weight reduction in an obese adult to a weight on the threshold of normal weight, showing not only pleasing physical changes, but also having far-reaching positive effects on health. The transformation from an obese body to a near-normal weight is a significant step that not only improves physical appearance, but also overall well-being and long-term health.

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Losing excess body weight is particularly beneficial as obesity is associated with a variety of health risks. Key benefits of weight loss include reducing the risk of cardiovascular disease, type 2 diabetes, certain cancers and respiratory diseases. Reduced body weight reduces the burden on the cardiovascular system by lowering blood pressure and blood lipid levels and improving heart function. This significantly reduces the risk of coronary heart disease, heart attacks and strokes. In addition, insulin sensitivity is also improved, which reduces the risk of developing type 2 diabetes. The risk of certain types of cancer, such as breast, bowel and uterine cancer, can also be reduced by losing weight. The reduction of fat deposits in the abdomen, which are considered to be particularly metabolically active, plays a decisive role here.[36-38]

In addition to the mentioned health benefits, the transition to a healthy body weight also promotes general well-being. Physical performance increases, breathing capacity improves and complaints such as joint pain, which are often caused by being overweight, decrease. All these factors contribute to those affected being able to participate more actively in life, which in turn increases their self-confidence and quality of life. A healthier weight also has psychological benefits, improving self-image and reducing the risk of depression and anxiety.[39]

As well as weight loss, healthy lifestyle habits also play a key role in achieving and maintaining a healthy weight. Cooking at home is one of the most effective strategies to ensure a balanced and nutritious diet. Home-cooked meals allow for better control over ingredients and portion sizes, which can reduce the intake of calories, sugar and unhealthy fats. In addition, cooking at home can strengthen the bond with food and promote a conscious and mindful way of eating, leading to healthier eating habits in the long term.

Cooking with the Thermomix appliance offers considerable advantages in this context. The Thermomix makes it quick and easy to prepare healthy meals that are perfectly tailored to individual nutritional needs. Thanks to its versatility, fresh ingredients can be processed gently, which promotes the preservation of nutrients and vitamins. The precise control of temperatures and cooking times also helps to maximize the nutritional value of the food. Another advantage is the ability to adjust recipes and portion sizes exactly as required, which is particularly helpful when it comes to calorie management and reducing unhealthy additives. In addition, the Thermomix supports structured and efficient meal planning, making it easier to integrate healthy eating habits into everyday life and thus ensure the long-term success of weight reduction.[27,28]

Daily physical activity is another crucial factor for weight loss and maintaining a healthy body weight. Regular physical activity not only helps to burn calories, but also boosts metabolism, muscle development and overall fitness. Physical activity can help to accelerate weight loss and maintain muscle tone, which is particularly important to ensure a sustainable and healthy weight status. In addition, regular physical activity helps to improve cardiovascular health, flexibility and mental health.[32]

Eating a small daily breakfast has also been shown to be beneficial for weight regulation. A balanced breakfast can boost metabolism, stabilize blood sugar levels and regulate appetite throughout the day. People who eat breakfast regularly are less prone to cravings and uncontrolled eating, which in turn has a positive effect on weight control.[40,41]

Adequate hydration also plays an essential role in supporting weight loss and overall health. Water is not only important for hydration, but also for metabolism and digestion. Adequate water intake can help reduce hunger by increasing stomach volume and thus promoting a feeling of fullness. In addition, water supports the elimination of waste products and promotes healthy skin, which also contributes to general well-being.[42]

In summary, losing weight from obese to normal weight not only leads to an improvement in physical appearance, but also brings a variety of health benefits. The combination of a healthy diet, regular exercise, a daily breakfast and sufficient fluid intake forms the basis for successful and sustainable weight loss, which significantly improves quality of life and reduces the risk of numerous chronic diseases.

Strengths and Limitations

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Although the pilot study showed promising results, it also has some weaknesses that need to be taken into account. The study was only carried out on one person and took place over a relatively short period of time, which limits the validity of the results. In addition, the subject had medical and sports science knowledge, which can be seen as a possible factor influencing the implementation. Nevertheless, the strengths of the study cannot be overlooked: The weight reduction achieved in a short time demonstrates the potential of the approach, especially as the intervention can be carried out at home and by anyone. The possibility of implementing such low-cost, large-scale measures with voluntary participants could also be used in the humanitarian sector in the future without having to rely on public funding, which could represent an enormous health booster.

Conclusions

The results of the pilot study demonstrate clearly that the health mix of regular cooking at home, a daily breakfast, a daily physical activity session and sufficient fluid intake can be an effective booster for weight loss in adults. This combination has not only led to a significant reduction in body weight, but has also shown that simple, everyday measures can have a profound effect on health.

Given these positive results, it is of great importance that further studies should be carried out to validate the findings from the pilot study in a larger, representative longitudinal study. Only through a broader scientific investigation can the potential benefits of this intervention approach for the general population be fully assessed. Such a study could help to have a lasting positive impact on the health development of the population and demonstrate that successful weight loss and health promotion is achievable for everyone, even without expensive medical or sports science expertise. In the long term, these findings could help to strengthen the prevention of obesity and related diseases and improve the quality of life of many people.

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References

1. Popkin BM. Global nutrition dynamics: the world is shifting rapidly toward a diet linked with noncommunicable diseases2. *The American Journal of Clinical Nutrition*. 2006;84(2):289-298. https://doi.org/10.1093/ajcn/84.2.289
2. Micha R, Khatibzadeh S, Shi P, Andrews KG, Engell RE, Mozaffarian D. Global, regional and national consumption of major food groups in 1990 and 2010: a systematic analysis including 266 country-specific nutrition surveys worldwide. *BMJ Open*. 2015;5(9):e008705. https://doi.org/10.1136/bmjopen-2015-008705
3. Ronto R, Wu JHY, Singh GM. The global nutrition transition: trends, disease burdens and policy interventions. *Public Health Nutrition*. 2018;21(12):2267-2270. https://doi.org/10.1017/S1368980018000423
4. Pereira MA, Kartashov AI, Ebbeling CB, et al. Fast-food habits, weight gain, and insulin resistance (the CARDIA study): 15-year prospective analysis. *The Lancet*. 2005;365(9453):36-42. https://doi.org/10.1016/S0140-6736(04)17663-0
5. Kearney J. Food consumption trends and drivers. *Philosophical Transactions of the Royal Society B: Biological Sciences*. 2010;365(1554):2793-2807. https://doi.org/10.1098/rstb.2010.0149
6. Janssen HG, Davies IG, Richardson LD, Stevenson L. Determinants of takeaway and fast food consumption: a narrative review. *Nutr Res Rev*. 2018;31(1):16-34. https://doi.org/10.1017/s0954422417000178
7. Smith LP, Ng SW, Popkin BM. Trends in US home food preparation and consumption: analysis of national nutrition surveys and time use studies from 1965-1966 to 2007-2008. *Nutrition Journal*. 2013;12(1):45. https://doi.org/10.1186/1475-2891-12-45
8. Enriquez JP, Archila-Godinez JC. Social and cultural influences on food choices: A review. *Critical Reviews in Food Science and Nutrition*. 2022;62(13):3698-3704. https://doi.org/10.1080/10408398.2020.1870434
9. Pilcher JM. *Food in World History*. Third edition. Routledge, Taylor & Francis Group; 2023.

 doi:10.20944/preprints202408.1651.v1

10. Baker P, Machado P, Santos T, et al. Ultra-processed foods and the nutrition transition: Global, regional and national trends, food systems transformations and political economy drivers. *Obes Rev*. 2020;21(12):e13126. https://doi.org/10.1111/obr.13126
11. Food, Culture, and Identity in Multicultural Societies: Insights from Singapore. 2020.
12. Viljoen AT, van der Spuy E, Du Rand GE. Food consumption, lifestyle patterns, and body mass index of a group of white South African students. *Int J Consumer Studies*. 2018;42(5):533-546. https://doi.org/10.1111/ijcs.12465
13. Lestari A, Fakhira A, Ismiana A, Annisaa A. Fast Food Consumption Behavior in Adolescents. *MIPHMP*. 2021;1(1):607-616. https://doi.org/10.53947/miphmp.v1i1.107
14. Jaworowska A, Blackham T, Davies IG, Stevenson L. Nutritional challenges and health implications of takeaway and fast food. *Nutr Rev*. 2013;71(5):310-318. https://doi.org/10.1111/nure.12031
15. Bankole E, Harris N, Rutherford S, Wiseman N. A systematic review of the adolescent-directed marketing strategies of transnational fast food companies in low- and middle-income countries. *Obes Sci Pract*. 2023;9(6):670-680. https://doi.org/10.1002/osp4.676
16. Kirkpatrick SI, Reedy J, Kahle LL, Harris JL, Ohri-Vachaspati P, Krebs-Smith SM. Fast-food menu offerings vary in dietary quality, but are consistently poor. *Public Health Nutrition*. 2014;17(4):924-931. https://doi.org/10.1017/S1368980012005563
17. Bowman SA, Vinyard BT. Fast food consumption of U.S. adults: impact on energy and nutrient intakes and overweight status. *Journal of the American College of Nutrition*. 2004;23(2):163-168. https://doi.org/10.1080/07315724.2004.10719357
18. Jenkin G, Wilson N, Hermanson N. Identifying 'unhealthy' food advertising on television: a case study applying the UK Nutrient Profile model. *Public Health Nutr*. 2009;12(5):614-623. https://doi.org/10.1017/s1368980008003029
19. Lobstein T, Davies S. Defining and labelling 'healthy' and 'unhealthy' food. *Public Health Nutr*. 2009;12(3):331-340. https://doi.org/10.1017/S1368980008002541
20. Abdullah NN, Mokhtar MM, Bakar MHA, Al-Kubaisy W. Trend on Fast Food Consumption in Relation to Obesity among Selangor Urban Community. *Procedia - Social and Behavioral Sciences*. 2015;202:505-513. https://doi.org/10.1016/j.sbspro.2015.08.189
21. Worldwide trends in underweight and obesity from 1990 to 2022: a pooled analysis of 3663 population-representative studies with 222 million children, adolescents, and adults. *The Lancet*. 2024;403(10431):1027-1050. https://doi.org/10.1016/S0140-6736(23)02750-2
22. James PT, Leach R, Kalamara E, Shayeghi M. The worldwide obesity epidemic. *Obesity Research*. 2001;9 Suppl 4(S11):228S-233S. https://doi.org/10.1038/oby.2001.123
23. Dixon JB. The effect of obesity on health outcomes. *Molecular and Cellular Endocrinology*. 2010;316(2):104-108. https://doi.org/10.1016/j.mce.2009.07.008
24. Afshin A, Forouzanfar MH, Reitsma MB, et al. Health Effects of Overweight and Obesity in 195 Countries over 25 Years. *N Engl J Med*. 2017;377(1):13-27. https://doi.org/10.1056/NEJMoa1614362
25. Nyberg ST, Batty GD, Pentti J, et al. Obesity and loss of disease-free years owing to major non-communicable diseases: a multicohort study. *The Lancet Public Health*. 2018;3(10):e490-e497. https://doi.org/10.1016/S2468-2667(18)30139-7
26. Wolfson JA, Leung CW, Richardson CR. More frequent cooking at home is associated with higher Healthy Eating Index-2015 score. *Public Health Nutr*. 2020;23(13):2384-2394. https://doi.org/10.1017/S1368980019003549
27. Reicks M, Kocher M, Reeder J. Impact of Cooking and Home Food Preparation Interventions Among Adults: A Systematic Review (2011–2016). *Journal of Nutrition Education and Behavior*. 2018;50(2):148-172.e1. https://doi.org/10.1016/j.jneb.2017.08.004
28. Reicks M, Trofholz AC, Stang JS, Laska MN. Impact of Cooking and Home Food Preparation Interventions Among Adults: Outcomes and Implications for Future Programs. *Journal of Nutrition Education and Behavior*. 2014;46(4):259-276. https://doi.org/10.1016/j.jneb.2014.02.001
29. Fries A, Bergmeister A-W, Spindler M. Thermomix by Vorwerk – A New Way of Cooking. In: Büchler J-P, ed. *Fallstudienkompendium Hidden Champions: Innovationen für den Weltmarkt*. Springer Fachmedien Wiesbaden; 2018:73-90.
30. Alyce A. *Quick Fix in the Thermomix*. RR Donnelley; 2012.
31. Rani R, Dharaiya CN, Singh B. Importance of not skipping breakfast: a review. *Int J Food Sci Technol*. 2021;56(1):28-38. https://doi.org/10.1111/ijfs.14742
32. Piercy KL, Troiano RP, Ballard RM, et al. The Physical Activity Guidelines for Americans. *JAMA*. 2018;320(19):2020-2028. https://doi.org/10.1001/jama.2018.14854
33. Warin M, Jay B, Zivkovic T. "Ready-made" assumptions: Situating convenience as care in the Australian obesity debate. *Food and Foodways*. 2019;27(4):273-295. https://doi.org/10.1080/07409710.2019.1673004

 doi:10.20944/preprints202408.1651.v1

34. Kollmann T. Die Digitale Transformation in der Küche. In: Ghadiri A, Vilgis T, Bosbach T, eds. *Wissen schmeckt: Die Magie der Wissenschaften beim Kochen erklärt – mit 16 Rezepten*. Springer Fachmedien Wiesbaden; 2018:147-167.
35. Willett W, Skerrett PJ, Giovannucci EL. *Eat, Drink, and Be Healthy: The Harvard Medical School Guide to Healthy Eating.* Updated and expanded [edition]. Free Press; 2017.
36. Jaacks LM, Vandevijvere S, an Pan, et al. The obesity transition: stages of the global epidemic. *The Lancet Diabetes & Endocrinology*. 2019;7(3):231-240. https://doi.org/10.1016/S2213-8587(19)30026-9
37. Kivimäki M, Kuosma E, Ferrie JE, et al. Overweight, obesity, and risk of cardiometabolic multimorbidity: pooled analysis of individual-level data for 120 813 adults from 16 cohort studies from the USA and Europe. *The Lancet Public Health*. 2017;2(6):e277-e285. https://doi.org/10.1016/S2468-2667(17)30074-9
38. Afshin A, Sur PJ, Fay KA, et al. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*. 2019;393(10184):1958-1972. https://doi.org/10.1016/S0140-6736(19)30041-8
39. Fulton S, Décarie-Spain L, Fioramonti X, Guiard B, Nakajima S. The menace of obesity to depression and anxiety prevalence. *Trends in Endocrinology & Metabolism*. 2022;33(1):18-35. https://doi.org/10.1016/j.tem.2021.10.005
40. Megson M, Wing R, Leahey TM. Effects of breakfast eating and eating frequency on body mass index and weight loss outcomes in adults enrolled in an obesity treatment program. *J Behav Med*. 2017;40(4):595-601. https://doi.org/10.1007/s10865-017-9828-0
41. Monzani A, Ricotti R, Caputo M, et al. A Systematic Review of the Association of Skipping Breakfast with Weight and Cardiometabolic Risk Factors in Children and Adolescents. What Should We Better Investigate in the Future? *Nutrients*. 2019;11(2):387. https://doi.org/10.3390/nu11020387
42. Armstrong LE, Johnson EC. Water Intake, Water Balance, and the Elusive Daily Water Requirement. *Nutrients*. 2018;10(12):1928. https://doi.org/10.3390/nu10121928