



## Testing the GoBe Body Manager's 100% Automatic Calorie Intake, Nutritional Intake, and Calorie Burn Measurements

Saint Petersburg State Institute of Health, Medical and Sports Clinic



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## Contents:

### 3 Overview

---

### 3 Summary of Key Findings

---

### 3 About the Testing Organization

---

### 3 Research Team

---

### 3 Volunteers

---

### 4 Testing Procedures: Measuring Calorie and Nutritional Intake

---

### 4 Test Results: Measuring Calorie and Nutritional Intake

---

### 7 Testing Procedures: Measuring Calories Burned

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### 7 Test Results: Measuring Calories Burned

---

### 9 Conclusions

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## Overview

Researchers at the **Saint Petersburg State Institute of Health’s Medical and Sports Clinic** put Healbe GoBe™ to the test to determine how accurately the 100% Automatic Body Manager™ measures calorie intake, nutritional intake, and calories burned. All tests were conducted by a credentialed, impartial third-party medical research team.

## Summary of Key Findings

The results of the tests demonstrate that:

- **GoBe measures calorie intake to within +/- 15.6%**
- **GoBe measure calorie burn to within +/- 6.6%**

Previous research has shown that manual calorie intake tracking is only 40-70% accurate, making GoBe revolutionary for those who want to understand what they’re eating without the hassles, errors, and estimation of manual logging and tracking.

## About the Testing Organization

The Saint Petersburg State Institute of Health’s Medical and Sports Clinic is a leading institution in the field of sports medicine in St. Petersburg, Russia. The clinic performs medical research and provides treatment, offering a wide range of medical services, including diagnostics, rehabilitation, and physical therapy.

All tests were performed at the Saint Petersburg State Institute of Health’s City Exercise Therapy Center, located at Office 8N, Building A, 11, Kolokolnaya Street, St. Petersburg, 191025, under medical license number 78-01-004639, issued on 04/25/2014 by the Health Committee of St. Petersburg.

For more information about the testing organization, visit: <http://www.medcaresport.spb.ru/>.

## Research Team

Meet the Saint Petersburg State Institute of Health research team:

### Testing Process Management

*Viktoria Ivanovna Danilova-Perley, MD*  
Chair of the Board at the Saint Petersburg State Institute of Health  
Chief Medical Officer of the City Exercise Therapy Center

### Volunteer Selection, Test Administration, Statistical Processing

*Marina Petrovna Lobkova, MD*  
Doctor of Exercise Therapy and Sports Medicine

### Organization and Methodology Specialist

*Andrey Anatolyevich Chechik*  
Head of Analytics at Healbe™

### Technical Support

*Oleg Mikhaylovich Gerasimov*  
PhD Candidate in Technical Sciences, Assistant Professor, Laboratory Chief at Healbe™

*Andrey Vyacheslavovich Yefimov*  
PhD Candidate in Technical Sciences

## Volunteers

Five volunteers were selected for the tests. They all received a full physical before the tests, along with instructions about how to use GoBe. All volunteers were in good health, with no special dietary restrictions.

### About the Test Volunteers

Volunteer Number	Gender	Age	Height	Weight	Health Status*
1	Female	61	5' 2"	186 lb	2
2	Female	33	5' 3"	121 lb	4
3	Female	42	5' 5"	152 lb	3
4	Female	44	5' 1"	112 lb	2
5	Female	54	5' 4"	160 lb	3

\* Volunteers evaluated their own health status on a scale of 1-5.



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## Testing Procedures: Measuring Calorie and Nutritional Intake

A total of 44 tests were conducted over 5 days. The tests were conducted during lunch and afternoon snack. Volunteers chose their own meals, and ate what they usually eat, with no special dietary restrictions.

Researchers calculated and recorded the nutritional makeup of each tested meal (grams of protein, fat, and carbohydrates), as well as its calorie content. During the tests, precision laboratory scales were used to weigh food to within +/- 1 gram.

To analyze the results, the GoBe body manager's automatic calorie intake measurements were compared to calculations using nutrient labels and food weighing.

### Each test followed this procedure:

1. Researchers calculated the nutritional and calorie content of the food eaten, by:
  - a. Weighting the food
  - b. Calculating the nutrient content of the food using manufacturer's labels and/or standard nutritional tables.
  - c. Calculating the calorie content of the food using manufacturer's labels and/or standard nutritional tables.
2. Volunteers took screenshots of the GoBe app, showing their calorie intake and nutritional makeup (proteins, fats, and carbs) before and after meals.
3. Readings from the GoBe app were compared with calculated values. *Note: The average error for each nutrient (protein, fat, and carbohydrates) was calculated relative to the total amount of calories provided by all nutrients, in order to get a more accurate absolute error rate.*

## Test Results: Measuring Calorie and Nutritional Intake

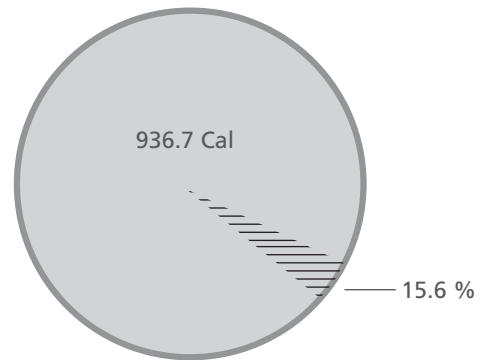
After the tests, the calorie and nutritional information calculated by weighing food and using nutrient tables and product labels was compared with the calorie intake and nutritional information provided by GoBe.

### Overall Accuracy of Calorie Intake and Nutritional Measurements

Total Number of Tests: 44

#### Calorie Intake:

- Average calorie intake during testing period, according to
- Average error, comparing GoBe measurements to nutritional chart data



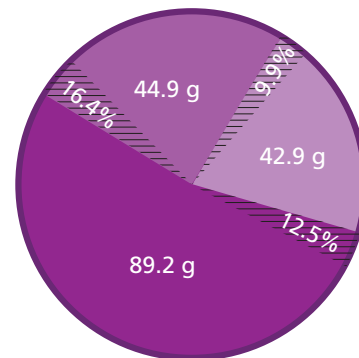
#### Nutrient Intake:

- Carbohydrates
- Fats
- Proteins

Average amount consumed during tests, according to nutritional chart data.

- Average Error

Average error for all tested meals, comparing GoBe measurements to nutritional chart data.



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## Accuracy of Calorie Intake and Nutritional Measurements, by Volunteer

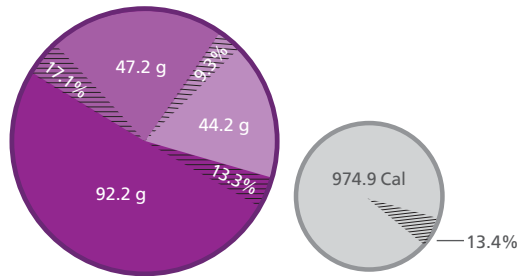
Average amount consumed during testing period, according to nutritional chart data.

Average error for all tested meals, comparing GoBe measurements to nutritional chart data.

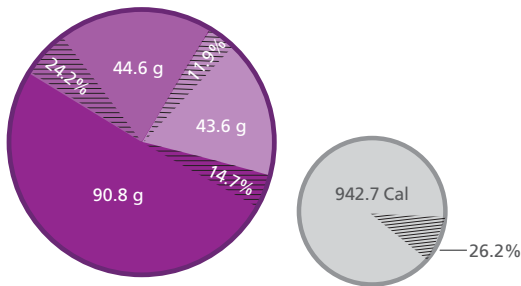
● Carbohydrates ● Fats ● Proteins ● Calories

⊘ Average Error

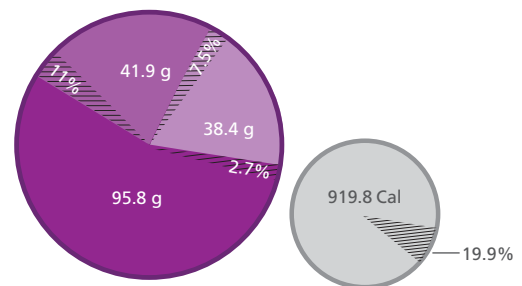
Volunteer 1



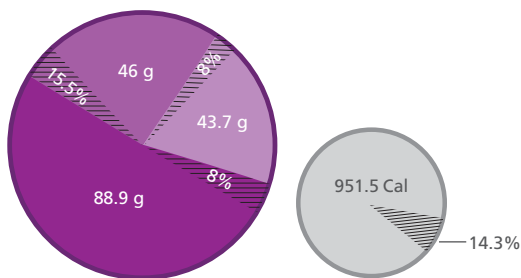
Volunteer 2



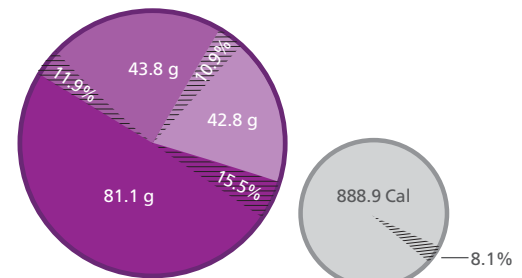
Volunteer 3



Volunteer 4



Volunteer 5



## Accuracy of Calorie Intake and Nutritional Measurements, by Day

Date		Proteins	Fats	Carbohydrates	Total calorie intake, kcal
1	Average Amount Consumed	39.8 g	38.6 g	105.3 g	939.6
	Average Error	6.9%	13.9%	7%	17.9%
2	Average Amount Consumed	33 g	53.5 g	81.5 g	961.7
	Average Error	5.2%	21.5%	12.4%	18.7%
3	Average Amount Consumed	58 g	49.6 g	61.2 g	920.5
	Average Error	18.8%	20.3%	24.5%	14.3%
4	Average Amount Consumed	44 g	50.6 g	85.5 g	956.6
	Average Error	8.9%	17.7%	9.9%	14.7%
5	Average Amount Consumed*	43.1 g	35.8 g	105.4 g	909.9
	Average Error**	9.8%	8.2%	8.5%	11.9%

\* Average amount of each nutrient and total calories consumed for all tested meals, according to nutritional chart data.

\*\* Average error for all tested meals, comparing GoBe measurements to nutritional chart data.



# Testing the GoBe Body Manager's 100% Automatic Calorie Intake, Nutritional Intake, and Calorie Burn Measurements

## Testing Procedures: Measuring Calories Burned

To test how accurately GoBe measures calories burned, researchers calculated each volunteer's Basal Metabolic Rate (BMR)—a standard measure of how many calories a person burns based on their age, height, and weight.

### Calculating Basal Metabolic Rate (BMR)

$$\begin{aligned} \text{BMR} = & \\ & 247 - 2.67 \\ & \times \text{Age (in years)} \\ & + 401.5 \\ & \times \text{Height (in meters)} \\ & + 8.6 \\ & \times \text{Weight (in kilograms)} \end{aligned}$$

Researchers used each volunteer's BMR to calculate how many calories they burned during the testing period, or their Total Energy Consumption (TEC). Total Energy Consumption calculations depend on activity level. Researchers use a standard "physical activity coefficient" to define different levels of activity. The volunteers engaged in only light physical activity (sitting, standing, minimal walking) during the tests, so researchers assigned them a physical activity coefficient of 1.2.

### Calculating Total Energy Consumption (TEC)

$$\begin{aligned} \text{TEC} = & \\ & 1.2 \\ & \times \text{BMR (Calories/minute)} \\ & \times \text{Duration of the Experiment} \end{aligned}$$

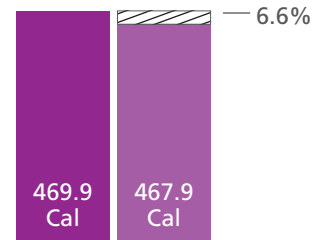
## Test Results: Measuring Calories Burned

To determine how accurately GoBe measures calories burned, researchers compared the volunteers' calculated Total Energy Consumption (TEC) with the GoBe app's readings.

### Overall Accuracy of Calorie Burn Measurements

● Average calculated TEC ● GoBe Measurement

⊖ Average Error



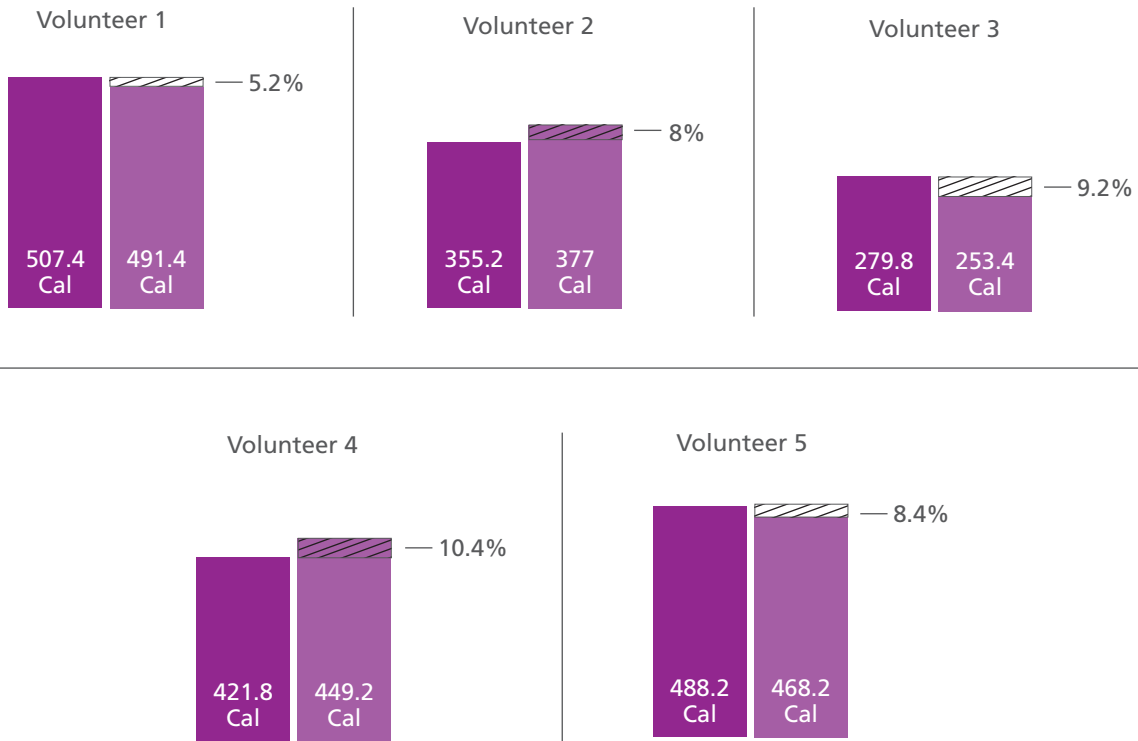
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# Testing the GoBe Body Manager's 100% Automatic Calorie Intake, Nutritional Intake, and Calorie Burn Measurements

## Accuracy of Calorie Burn Measurements, by Volunteer

● Average calculated TEC    
 ● GoBe Measurement    
 Average Error



## Accuracy of Calorie Burn Measurements, by Day

Date of experiment	Calculation Average calories burned during testing period, per day	GoBe Measurement Average calories burned during testing period, per day	Average Error
1	459.6	483.6	5.2%
2	454.8	393	13.5%
3	475	522.5	10%
4	505.3	489.6	3.1%
5	454.8	450.8	0.8%



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## Testing the GoBe Body Manager's 100% Automatic Calorie Intake, Nutritional Intake, and Calorie Burn Measurements

### Conclusions

According to the research team:

The testing results show that the GoBe body manager **measures calorie intake within an average error rate of 15.6%.**

The test results also show that the GoBe body manager **measures calories burned during routine activity within an average error rate of 6.6%.**

A handwritten signature in black ink, appearing to read "V. Danilova-Perley".

*Viktoria Ivanovna Danilova-Perley, MD*  
Chair of the Board at the Saint Petersburg  
State Institute of Health  
Chief Medical Officer of the City Exercise Therapy Center



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