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## **Cellulite, overweight and obesity in female patients with hypothyroidism**

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## Abstract

**Introduction.** A bad diet and lack of physical activity are the most commonly reported causes of overweight and cellulite. Unfortunately, problems with slimming and "orange peel" may not only result from dietary mistakes but also hormonal imbalance.

**Aim of the paper.** The aim of the study was to assess the impact of hypothyroidism on overweight, the degree of obesity and the prevalence of cellulite in patients with hypothyroidism in the course of Hashimoto's disease.

**Material and methods.** The study was carried out in March 2018 in Opole Lubelskie. The study group consisted of 35 women over 18 years of age. The research tool was the standardised Contour Drawing Rating Scale (Thompson and Gray) and the author's questionnaire.

**Results.** The calculated BMI values of the subjects showed the presence of overweight in every fifth woman, class I obesity in 11.43%, class II obesity in 28.57% and class III obesity in 40% of the respondents. According to 94.28% of the respondents, physical activity affects the appearance of the body, but only 5.72% of the study subjects do sports. Among the respondents, over half (68.57%) indicated the presence of third-degree cellulite.

**Conclusions.** Cellulite is most common in overweight and obese women. The occurrence of overweight and obesity may be associated with a poor diet and low physical activity, but also with hormonal disorders resulting from thyroid dysfunction.

**Key words: cellulite; overweight; obesity; hypothyroidism**

## **Introduction**

The most common cause of overweight and obesity, followed by problems with weight loss and cellulite, is inadequate diet. Poor eating habits are very often linked to a lack of physical activity and poor lifestyle, including a small amount of sleep and excessive levels of stress. These symptoms may also have a direct relationship with hormonal disorders. Excess body weight may also be the result of untreated or poorly treated hypothyroidism. Incorrect levels of thyroid hormones in the body can cause a gradual increase in body weight, despite a healthy lifestyle. Thyroid hormones are important factors responsible for the correct rate of metabolism. One of the first symptoms of hypothyroidism is often weight gain or difficulty with weight loss. The result of hypothyroidism is slow metabolism, which reduces the burning of calories provided; excess calories are deposited in the form of unnecessary fat, thus causing an increase in body weight and deterioration of the skin's appearance. In this case, pharmacological treatment is of great importance. Unfortunately, this does not always result in the successful removal of excess kilograms [2]. Therefore, it seems extremely important to combine endocrine treatment with dietitian's and cosmetologist's care. Diet therapy is based on the rationalisation of healthy eating. In the case of overweight and obesity, it is necessary to include a reducing diet. Medical cosmetology, on the other hand, offers great opportunities for successfully combating cellulite [1,3].

## **Aim of the study**

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## **Material and methods.**

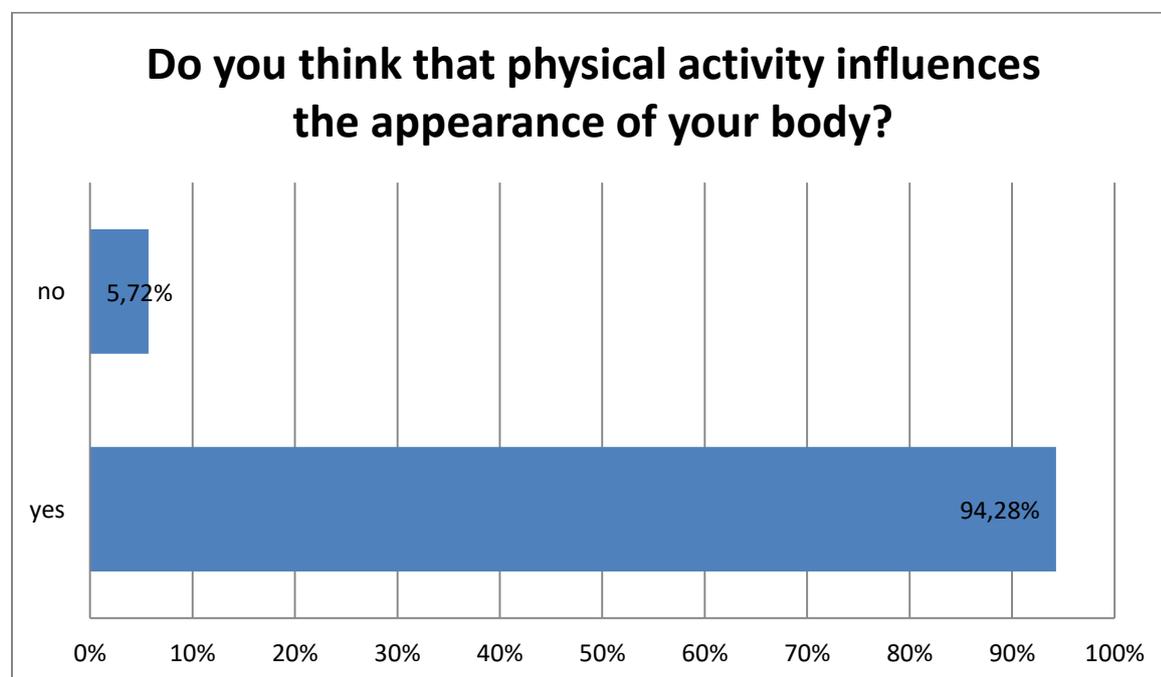
The study was carried out in March 2018 among the patients of the Endocrine Clinic in Opole Lubelskie (Lublin Province). The criteria for the selection of respondents were: over 18 years of age, female gender, excessive body weight and treatment due to hypothyroidism. The study group consisted of 35 women. The research tools included the author's questionnaire with a data sheet and the Contour Drawing Rating Scale (Thompson and Gray), used to assess the type of figure. BMI was calculated on the basis of the measurements of the height and weight of subjects. During the analysis of data from questionnaire studies, selected descriptive tools were used to describe the collected research material and to determine the

reliability of the relationships observed in the sample. The description of the collected data consisted in grouping them for nominal features or designating descriptive statistics for measurable features. The analysis also used the  $\chi^2$  test with the Yates correction.

## Results

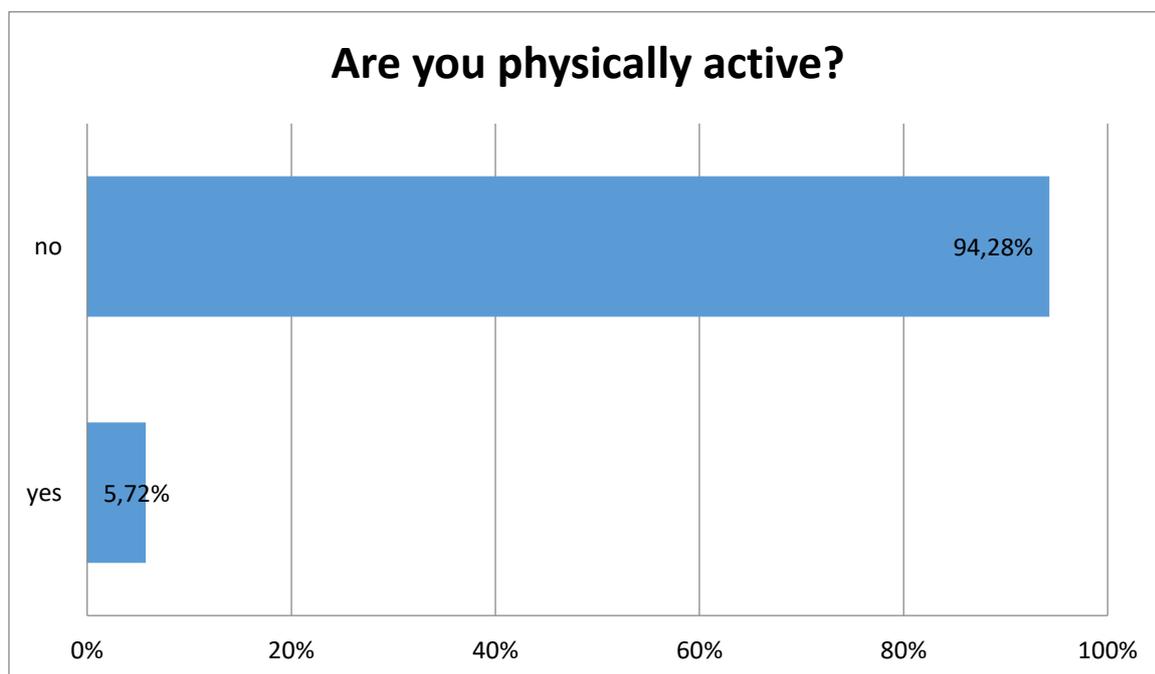
Over 60% of the respondents were women between 35 and 45 years of age. The analysis of BMI values showed the presence of overweight in every fifth woman, class I obesity in 11.43%, class II obesity in 28.57% and class III obesity in 40% of respondents. The women had secondary, vocational and higher education (28.5%, respectively) and basic education (14.28%). The respondents lived in a small town (68.57%), a village (22.86%) and a big city (8.57%). They assessed their material situation as average (48.57%) or good (31.47%). Only 5.71% of respondents rated their material situation as very good, while 14.28% as bad.

Figure 1. Percentage summary of the assessment of the impact of physical activity on body appearance



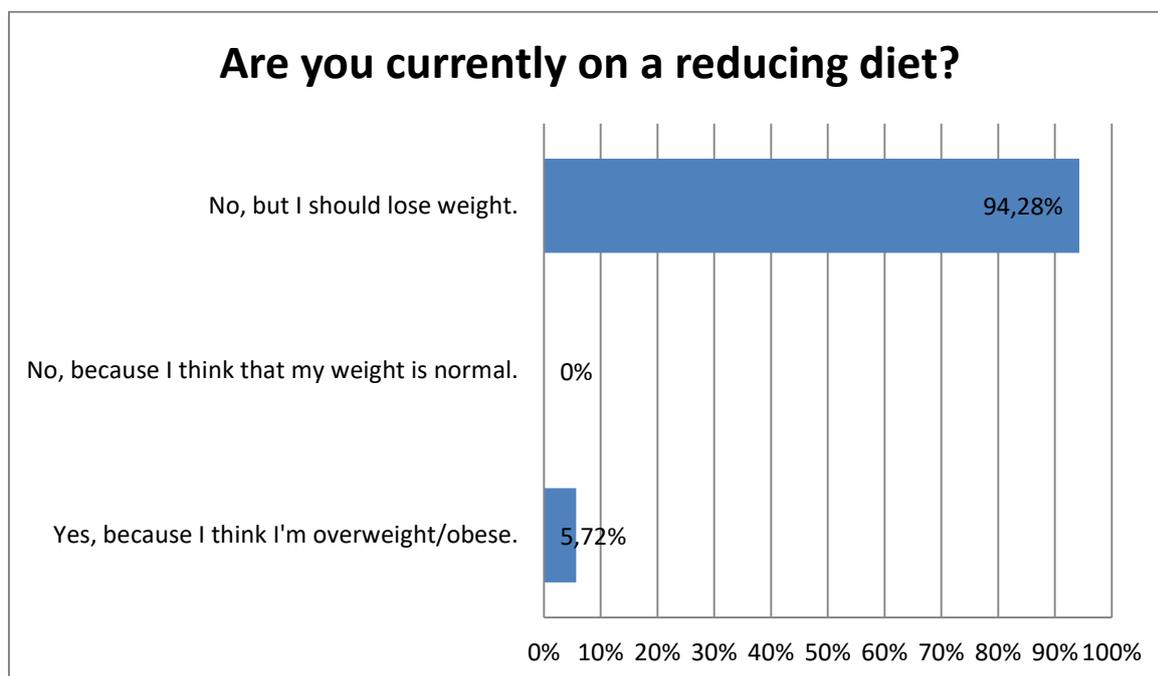
Almost all the respondents (94.28%) stated that physical activity influences the appearance of the body. Only 5.72% of the subjects denied the above statement.

Figure 2. Percentage summary of the respondents' physical activity



Despite the belief about the beneficial effect of physical activity on the appearance of the body, only two (5.72%) of 35 women declared doing sports. When asked how many times a week they did sports, both declared that "once a week". At the same time, these respondents rated their physical activity as good. The remaining 94.28% of respondents did not undertake physical activity.

Figure 3. Percentage summary of information on the use of reducing diets



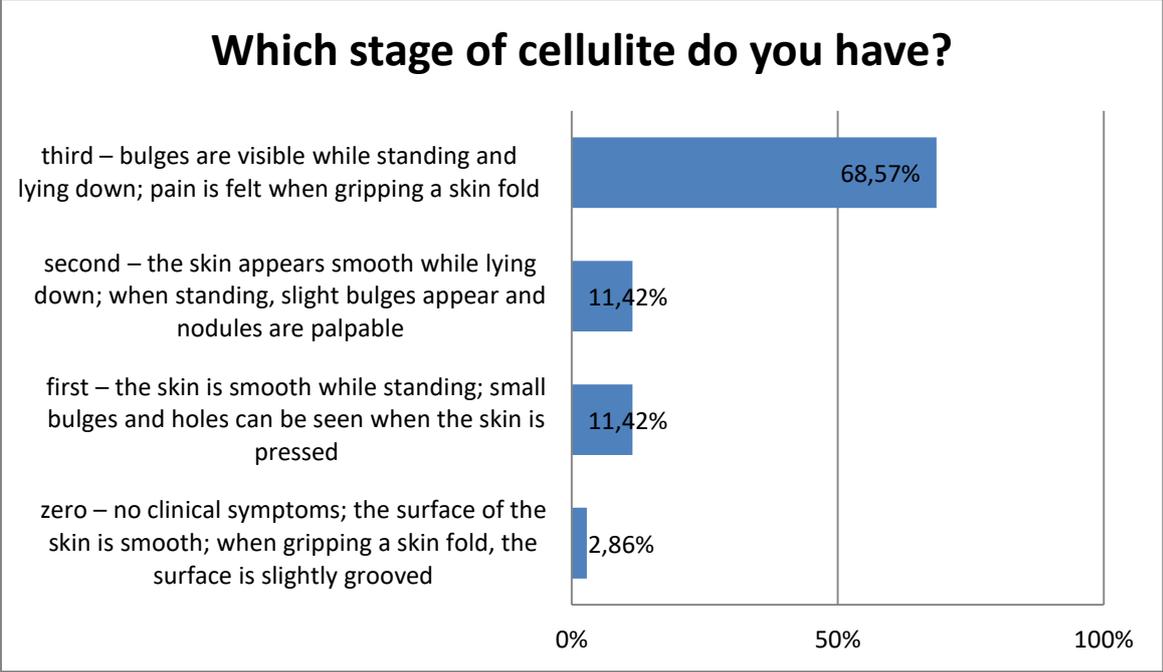
All the respondents rated their body weight as above normal. Among the subjects, 94.28% were not on a reducing diet, but they realized that they should lose weight. Two of the respondents (5.72%) used diets reducing body weight.

Table 1. Opinions of the women on female figures. The  $\chi^2$  test with Yates' correction

Body shape	Perception of the body shape			
	I Own	II Ideal	III Desired	P
A		4%	4%	NS
B	21%	44%	39%	0.019 I a/ vs II
C	28%	50%	49%	0.047 I a/ vs II
D	37%	2%	8%	< 0.001 I A/vs II a/vs III
E	7%			-
F	6%			-
G				-
H	1%			-
I				-

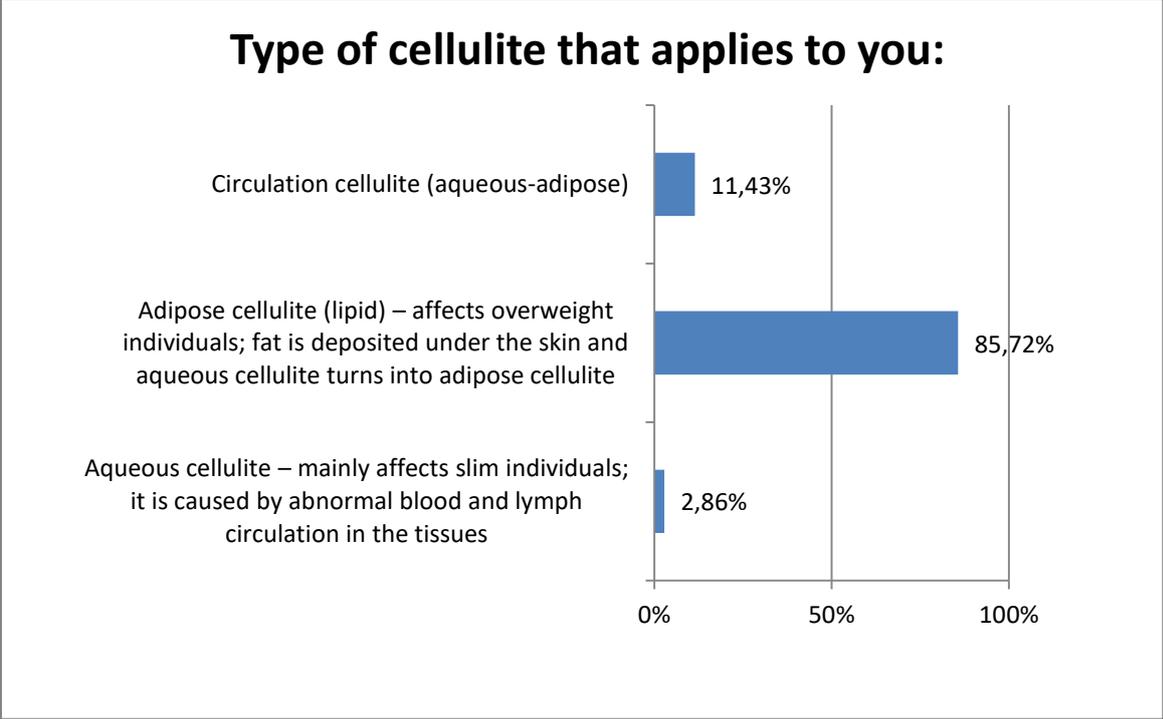
The survey included a diagram showing 9 female figures. Each respondent was asked to indicate the one that, in her opinion, reflected her own figure, the ideal figure and the desired one. The respondents defined their body shapes as type D (37%), C (28%) or B (21%). None of them chose options A, G and I (Table 1). In the assessment of the majority of subjects, the ideal body shapes were figures C (50%) and B (44%). None of the subjects indicated figures from E to I. According to the respondents, the ideal and desired body shapes were C (49%) and B (39%). The subjects did not also mention the figures from E to I. The obtained results allow to determine the degree of discrepancy between the "real me" (perception of the own figure), "ideal me" and "ought self" (dream body shape).

Figure 4. Percentage summary of the stages of cellulite development



The majority of respondents observed symptoms characteristic of the third stage of cellulite (68.57%). The second stage of cellulite was observed by 11.42%, the first stage – by 11.42% and the zero stage – by 2.86% of the respondents.

Figure 5. Percentage summary of the declared types of cellulite



The questionnaire contained short characteristics of individual types of cellulite. The vast majority of respondents suffer from fat cellulite (85.72%), which is most common in overweight and obese individuals.

## **Discussion**

The literature on the subject indicates that hormonal disorders, lack of physical activity and bad eating habits can lead to overweight and obesity, and to cellulite [ ]. The respondents were aware of the fact that their body weight was excessive, but the majority of them did not use any reducing diets. It is worth mentioning that despite the fact that the respondents were aware how physical activity influences the appearance of the body, only a few declared regular physical activity. The vast majority of study subjects admitted to having the advanced stage of cellulite, which they described as lipid cellulite – concerning overweight people. Weight gain, problems with weight loss and cellulite may be symptoms of thyroid diseases such as hypothyroidism and Hashimoto's disease, concerning an increasing number of women. The literature on the subject states that the thyroid gland is responsible for the correct metabolism and the disease changes the functioning of the whole body; metabolism usually slows down, so the body does not need to burn the calories supplied, the excess of which is stored in the form of unnecessary fat deposits. This results in weight gain, deteriorated skin appearance and cellulite. A skilful combination of endocrine treatment with dietician's and cosmetologist's care is very important. In the case of overweight and obesity, it is necessary to include a reducing diet. Most of the respondents attempted to use a reducing diet and were aware of the need to implement dietary restrictions. Despite being aware of the benefits of physical activity, they did not partake in it. Therefore, it is necessary to emphasize the need to implement preventive measures and proper education of patients. It seems justified that patients who are particularly at risk of obesity should obligatorily be educated by a dietitian. Regular physical activity adjusted to the capacity of the patient is also necessary. It should be noted that medical cosmetology offers great opportunities for successfully combating cellulite. Well-chosen treatments will enhance the effects of pharmacotherapy and diet therapy, positively influencing the condition of the skin and its defects [4,5].

## **Conclusions**

1. Most of the respondents are aware of the benefits of regular physical activity, however, only a few partake in it.
2. Despite the awareness of the occurrence of significant overweight and obesity, the women do not use reducing diets.

3. The majority of women with excess body weight treated for hypothyroidism do not implement any dietary restrictions.
4. Women critically evaluated their bodies and only a very slim figure was satisfying for them. Only half of the respondents identified themselves with the ideal body model.

## References

1. Cotterill JA. Damage limitation in cosmetic dermatology. *J Cosmet Dermatol* 2002, 1(4): 211-213
2. Gietka-Czernel M.: Niedoczynność tarczycy. W: Zgliczyński W. red. *Endokrynologia cz. I*, Wyd. I. Wyd. Medical Tribune Polska, Warszawa 2011.
3. Izydorczyk B, Rybicka-Klimczyk A. Poznawcze aspekty obrazu ciała u kobiet a zaburzenia odżywiania. *Endokrynol Pol* 2009, 60(4): 287-294.
4. Rodondi N, den Elzen WP, Bauer DC et al.: Subclinical hypothyroidism and the risk of coronary heart disease and mortality. *JAMA*. 2010; 304(12): 1365-1374. doi: 10.1001/jama.2010.1361.
5. Thompson MA, Gray JJ. Development and validation of a new body-image assessment scale. *J Pers Assess* 1995, 64(2): 258-269.