

# European Society of Endocrinology clinical practice guideline: endocrine work-up in obesity.

Guideline ID: 2171

Published: 2020 Jan

## European Society of Endocrinology (ESE)

*Pasquali R, Casanueva F, Haluzik M, et al. European Society of Endocrinology clinical practice guideline: endocrine work-up in obesity. Eur J Endocrinol. 2020 Jan;182(1):G1-G32. [216 references] PubMed*

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## Overview

## Guideline Objective

To provide clinicians with practical guidance for the endocrine work-up in obesity, including the potential therapeutic consequences of hormonal alterations

**Note:** This guideline does not to focus on syndromic obesity.

## Patient Population

Patients with obesity

## Recommendations

## Recommendation Statements

# 1. General Recommendations

**Recommendation 1.1.** We suggest that for all patients it is of value to measure weight and height to calculate body mass index (BMI), as obesity is an important condition that often remains undiagnosed. For routine care defining obesity as BMI >30 kg/m<sup>2</sup> is sufficient as first diagnostic measure. Measuring waist-circumference can provide additional information especially if BMI <30 kg/m<sup>2</sup>.

**Recommendation 1.2.** We recommend that not all patients with obesity are routinely referred to an endocrinologist.

**Recommendation 1.3.** We recommend that weight loss in obesity is emphasized as key to restoration of hormonal imbalances.

**Recommendation 1.4.** We recommend taking into account drugs and dietary supplements that interfere with hormone measurements as part of the hormonal evaluation in obesity.

# 2. Testing for Thyroid Function

**Recommendation 2.1.** We recommend that all patients with obesity are tested for thyroid function. (+++0)

**Recommendation 2.2.** We recommend that testing for hypothyroidism is based on thyroid-stimulating hormone (TSH); if TSH is elevated, free thyroxine (FT4) and antibodies (anti-TPO) should be measured. (++00)

**Recommendation 2.3.** We do not recommend the routine measurement of free triiodothyronine (FT3) in patients with elevated TSH.

**Recommendation 2.4.** We suggest that for obese patients the same normal hormonal values are applied as for non-obese. (+000)

**Recommendation 2.5.** We recommend that overt hypothyroidism (elevated TSH and decreased FT4) is treated in obesity irrespective of antibodies. (++00)

**Recommendation 2.6.** We recommend against the use of thyroid hormones to treat obesity in case of normal thyroid function. (++00)

**Recommendation 2.7.** We recommend that hyperthyrotropinaemia (elevated TSH and normal FT4) should not be treated in obesity with the aim at reducing body weight. (++00)

**Recommendation 2.8.** We suggest that for the decision to treat or not to treat hyperthyrotropinaemia, TSH level, thyroid antibodies, and age should be taken into account.

**Recommendation 2.9.** We suggest against the use of routine ultrasound of the thyroid gland irrespective of thyroid function.

### 3. Testing for Hypercortisolism

**Recommendation 3.1.** We recommend that testing for hypercortisolism is not routinely applied in obesity. (++)

**Recommendation 3.2.** In patients with clinical suspicion of hypercortisolism biochemical testing should be performed. (++)

**Recommendation 3.3.** We recommend that in patients going for bariatric surgery (testing for) hypercortisolism should be considered.

**Recommendation 3.4.** We suggest that for patients with obesity the same normal values are applied as for non-obese. (+)

**Recommendation 3.5.** We recommend not to test for hypercortisolism in patients using corticosteroids.

**Recommendation 3.6.** If hypercortisolism testing is considered, we recommend a 1 mg overnight dexamethasone suppression test as first screening tool.

**Recommendation 3.7.** If the 1 mg overnight dexamethasone suppression test is positive, we recommend a second biochemical test; this can be either 24-h urine cortisol or late-night salivary cortisol.

**Recommendation 3.8.** In all patients with confirmed hypercortisolism, an adrenocorticotrophic hormone (ACTH) should be measured and further imaging should be performed to find the cause/source of the hypercortisolism.

**Recommendation 3.9.** Treatment of proven endogenous hypercortisolism is not normalizing BMI in most cases.

### 4. Testing for Hypogonadism in Males

**Recommendation 4.1.** We recommend that biochemical testing for hypogonadism is not routinely applied in male obese patients; we do recommend investigating key clinical

symptoms/signs of hypogonadism. (**++00**)

**Recommendation 4.2.** In male patients with obesity with clinical features of hypogonadism we suggest measuring total and free testosterone (or calculated), sex hormone-binding globulin (SHBG), follicle-stimulating hormone (FSH) and luteinizing hormone (LH).

**Recommendation 4.3.** In obesity we suggest applying age-specific reference ranges for testosterone. (**+000**)

**Recommendation 4.4.** We recommend emphasizing the importance of weight loss to restore eugonadism in obese patients with biochemical and clinical hypogonadism.

**Recommendation 4.5.** We suggest that if weight loss cannot be achieved and if clinical and biochemical hypogonadism persists, treatment with testosterone can be considered in individual cases; contra-indications should be considered and other causes of hypogonadism should have been ruled out. The sole presence of obesity is not enough reason to start testosterone. (**+000**)

**Recommendation 4.6.** We suggest treatment with testosterone aiming at testosterone levels in the normal range. (**+000**)

**Recommendation 4.7.** We suggest stopping testosterone treatment if clinical features are not improving despite biochemical restoration for 6–12 months. (**+000**)

**Recommendation 4.8.** We do not recommend testosterone treatment as a first therapeutic measure in hypogonadal male patients with obesity seeking fertility. (**+000**)

## 5. Testing for Gonadal Dysfunction in Females

**Recommendation 5.1.** We recommend that testing for gonadal dysfunction is not routinely applied in female patients with obesity. (**++00**)

**Recommendation 5.2.** We suggest to assess gonadal function in female patients with obesity with menstrual irregularities and chronic anovulation/infertility.

**Recommendation 5.3.** For evaluation of menstrual irregularity we suggest to assess gonadal function by measuring LH, FSH, total testosterone, SHBG,  $\Delta$  4androstenedione, oestradiol, 17-hydroxyprogesterone and prolactin. If the menstrual cycle is irregular but somewhat predictable, we suggest that the assessment should take place during the early follicular phase.

**Recommendation 5.4.** For evaluation of anovulation we suggest gonadal function to be assessed by measuring LH, FSH, oestradiol, progesterone and prolactin.

**Recommendation 5.5.** We recommend to assess androgen excess when polycystic ovary syndrome (PCOS) is considered based on the clinical features. We suggest to measure total testosterone, free T,  $\Delta$  4androstenedione and SHBG. We additionally recommend to assess ovarian morphology and blood glucose.

**Recommendation 5.6.** We suggest to initiate metformin treatment in women with PCOS that additionally present metabolic syndrome features. (**++00**)

**Recommendation 5.7.** We recommend not to start metformin with the sole aim to reduce body weight. (**+000**)

**Recommendation 5.8.** We recommend not to start oestrogen substitution in postmenopausal obese women with the sole aim to reduce body weight. (**+000**)

## 6. Other Hormones

**Recommendation 6.1.** We recommend that testing for insulin-like growth factor 1 (IGF1)/growth hormone (GH) is not routinely applied in obesity. (**+000**)

**Recommendation 6.2.** We suggest testing for IGF1/GH only in patients with suspected hypopituitarism; if tested a dynamic test should be performed as a minimum. (**+000**)

**Recommendation 6.3.** We recommend not to use GH to treat obesity in patients with normal GH levels. (**+000**)

**Recommendation 6.4.** We suggest not to perform routine tests for vitamin D deficiency in patients with obesity. (**+000**)

**Recommendation 6.5.** We suggest not to test for hyperparathyroidism routinely in patients with obesity. (**+000**)

**Recommendation 6.6.** We recommend not to test routinely other hormones, such as leptin and ghrelin, unless there is suspicion of a syndromic obesity.

**Recommendation 6.7.** We suggest to consider secondary causes of hypertension in the context of therapy-resistant hypertension in obesity.

## Evidence Rating Scheme

The quality of evidence behind the recommendations is classified as **very low (+000)**, **low (++)00**, **moderate (+++0)** and **strong (++++)**. We formally graded only the evidence underlying recommendations for diagnostic strategies.

Scheme not provided.

## Recommendation Rating Scheme

The recommendations in this guideline are worded as we recommend (**strong recommendation**) and we suggest (**weak recommendation**).

Scheme not provided.

## Related Content

## Supporting Documents

- [Prevalence of Endocrine Disorders in Obese Patients: Systematic Review and Meta-analysis; 2020 Jan.](#)
  - [Supplementary Data 1.](#)
  - [Supplementary Data 2.](#)
  - [Supplementary Data 3.](#)
  - [Supplementary Data 4.](#)
  - [Supplementary Data 5.](#)
- [Endocrine Testing in Obesity; 2020 Apr.](#)

## Implementation Tools

No implementation tools available.

## Patient Education

No patient education materials available.

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# TRUST Scorecard

## Composition of Guideline Development Group (GDG)

Multidisciplinary GDG Members

Yes

Methodologist Involvement

Yes

Incorporation of Patient and Public Perspective



## Systematic Review of Evidence

Literature Search



Study Selection



Evidence Synthesis



## Foundations for Recommendations

Strength of Evidence Grade



Description of Benefits and Harms of Recommendations



Summary of Evidence Supporting Recommendations



Strength of Recommendations Rating



Clear Articulation of Recommendations



**Funding Source**

Yes

**Disclosure and Management of Financial Conflicts of Interests**



**External Review**



**Updating**

