IMPACT OF NUTRITION ON GYNECOLOGICAL HEALTH OF FEMALE ADOLESCENTS

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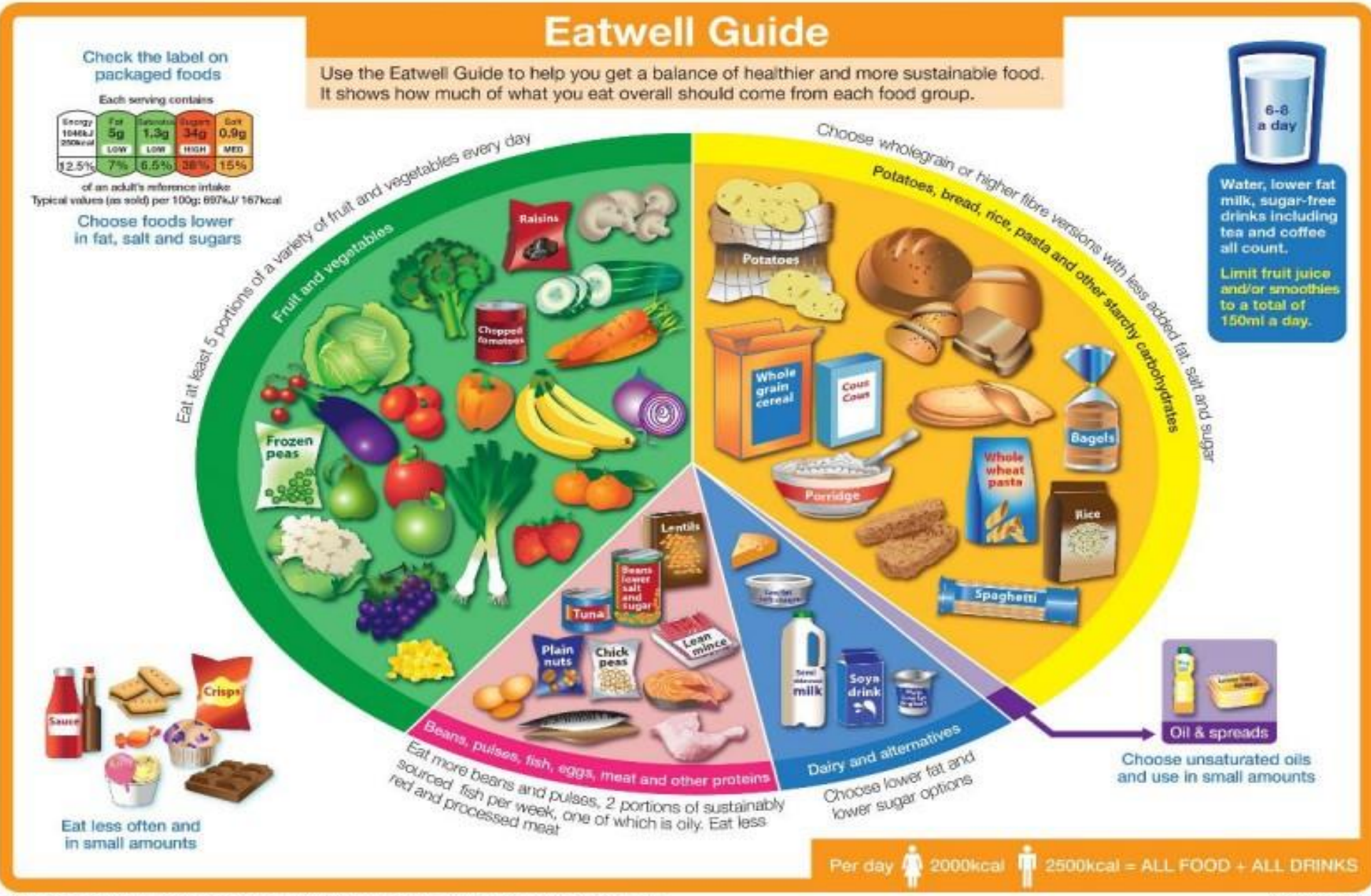
NUTRITION

- *WHO* - Nutrition is the intake of food, considered in relation to the body's dietary needs.

Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health

Adequat nutrition

according to British Nutrition Foundation



PHYSICAL ACTIVITY RECOMMENDATION BABIES

- Even before babies can crawl or walk it is important to try and get them moving every day. Parents have to encourage the baby to be physically active

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PHYSICAL ACTIVITY RECOMMENDATION CHILDREN 1-5 Y

- **Young children**: Once children start walking they should be active for at least 180 minutes every day (3 hours). This can include light activity and more energetic activity, as well as active play.

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PHYSICAL ACTIVITY RECOMMENDATION CHILDREN 5-18 Y

- **Children 5-18 years**: at least 60 min every day

- It is also very important for children and young people to reduce the time they spend sitting down (e.g. by reducing time spent watching TV or using computers) and take part in active forms of transport like walking and cycling instead of travelling by car

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Obesity

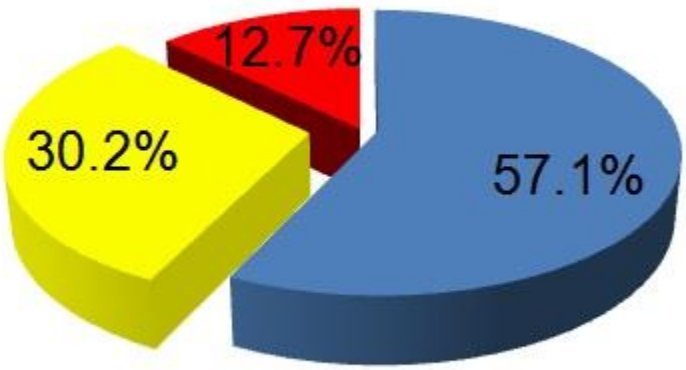
Childhood obesity is a worldwide problem faced by almost one in five children and adolescents

The number of publications that prove the effect of BMI and adipose tissue on the menstrual function increases every day, but only few of them concern the period of adolescence

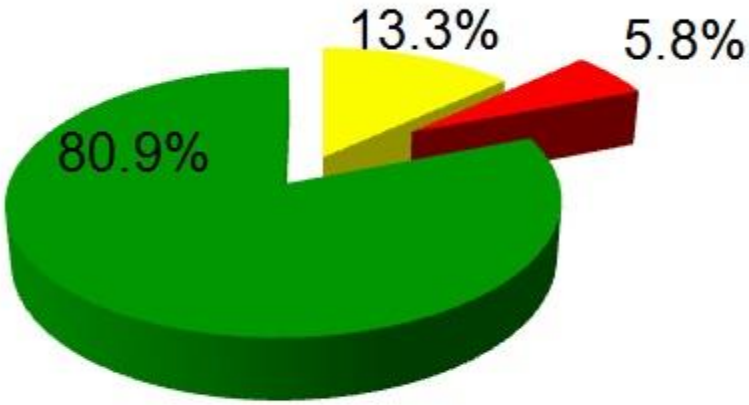
BMI= kg/m^2

- BMI 18-25 Normal
- BMI 25,1 – 30 Overweight
- BMI > 30 Obesity

Statistics in Bulgaria



Children between 6-19 years (WHO)



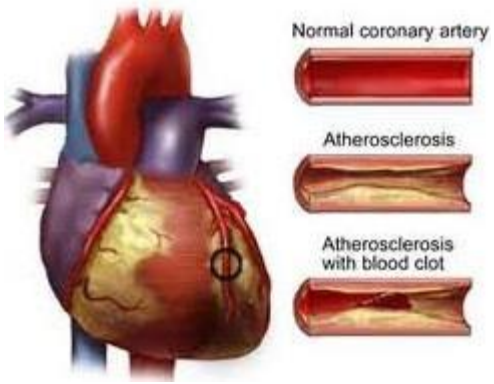
Girls between 14-19 years (WHO)

National Nutrition Survey of school-aged children conducted in 2010-2011

Why is this important?

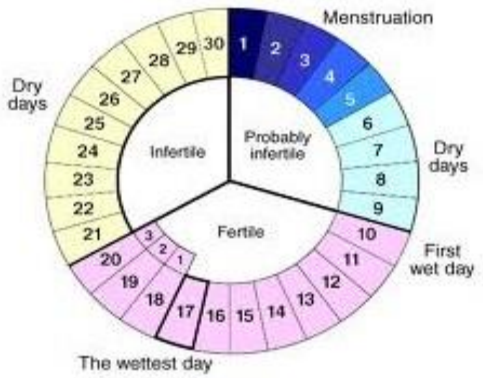
Overweight and obesity are often related to some serious metabolic and endocrine disorders such as:

cardiovascular | **metabolic syndrome** | **diabetes type 2**



In the future life they can negatively affect the female reproductive function starting mostly with menstrual disorders

Menstrual disorders



Any kind of menstrual disorder is almost the main gynecological complaint of the adolescent girls after menarche

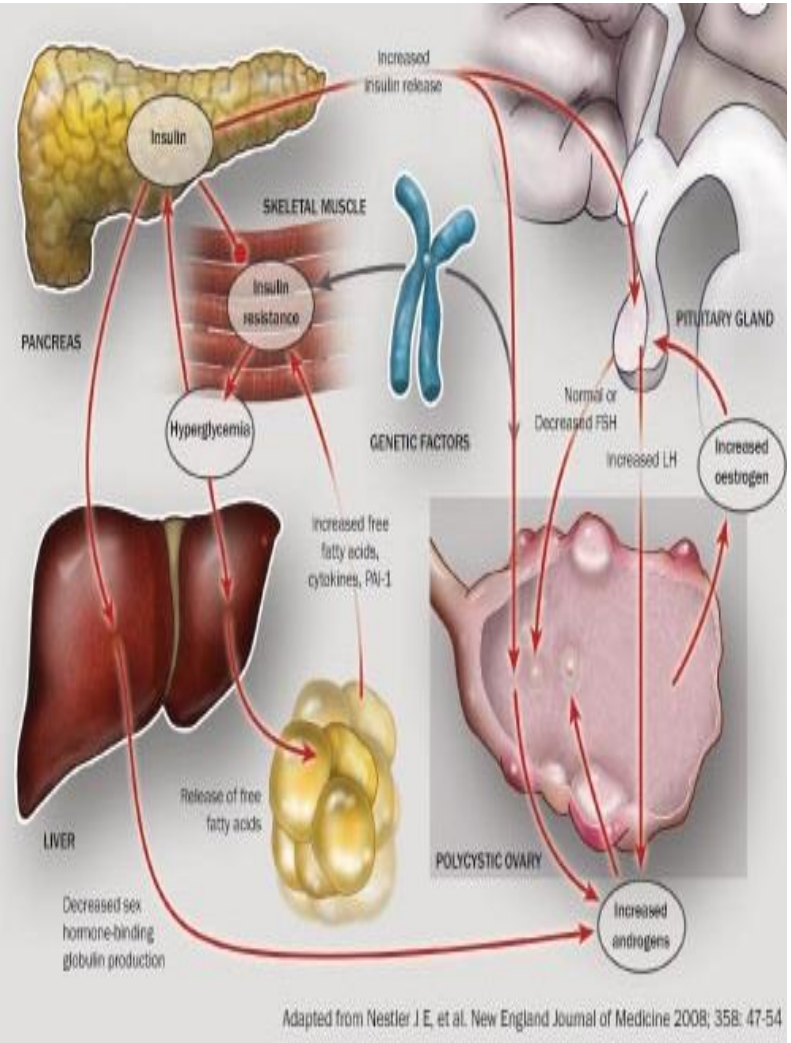
Oligomenorrhea (29.38%)

Secondary amenorrhea for more than 6 months (18.36%)

PCOS (11-26%)

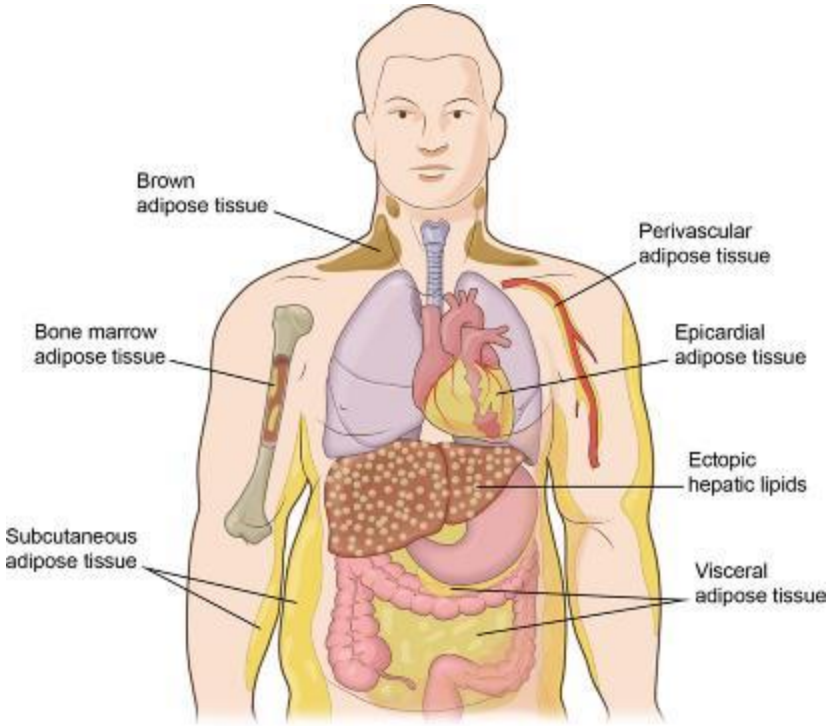
PCOS in adolescence

- PCOS is a poliglandular heterogenic metabolic condition
- Most of the PCOS patients have no ovulation so they are unable to conceive
- The main pathogenic factors are hyperinsulinemia and hyperandrogenemia



HOW OBESITY AFFECTS THE REPRODUCTIVE FUNCTION?

ADIPOSE TISSUE



Endocrine function

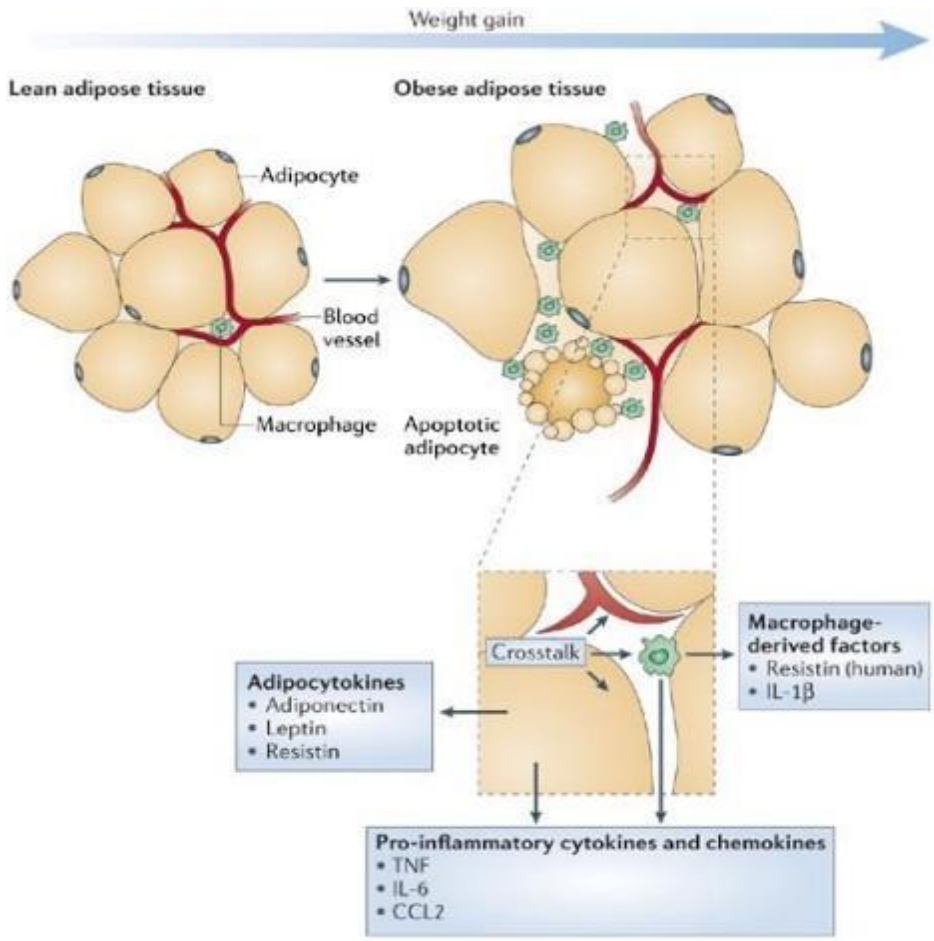
Metabolic function

Thermoregulatory function

Protective function

Endocrine function

- The adipose tissue in the last decade is known to have important endocrine function
- Adipocytes secret biologically active substances called adipocytokines – leptine, adiponectine, resistine, visfatine, apeline etc.
- The adipocytokines have an important role for the menstrual function regulation



Leptin

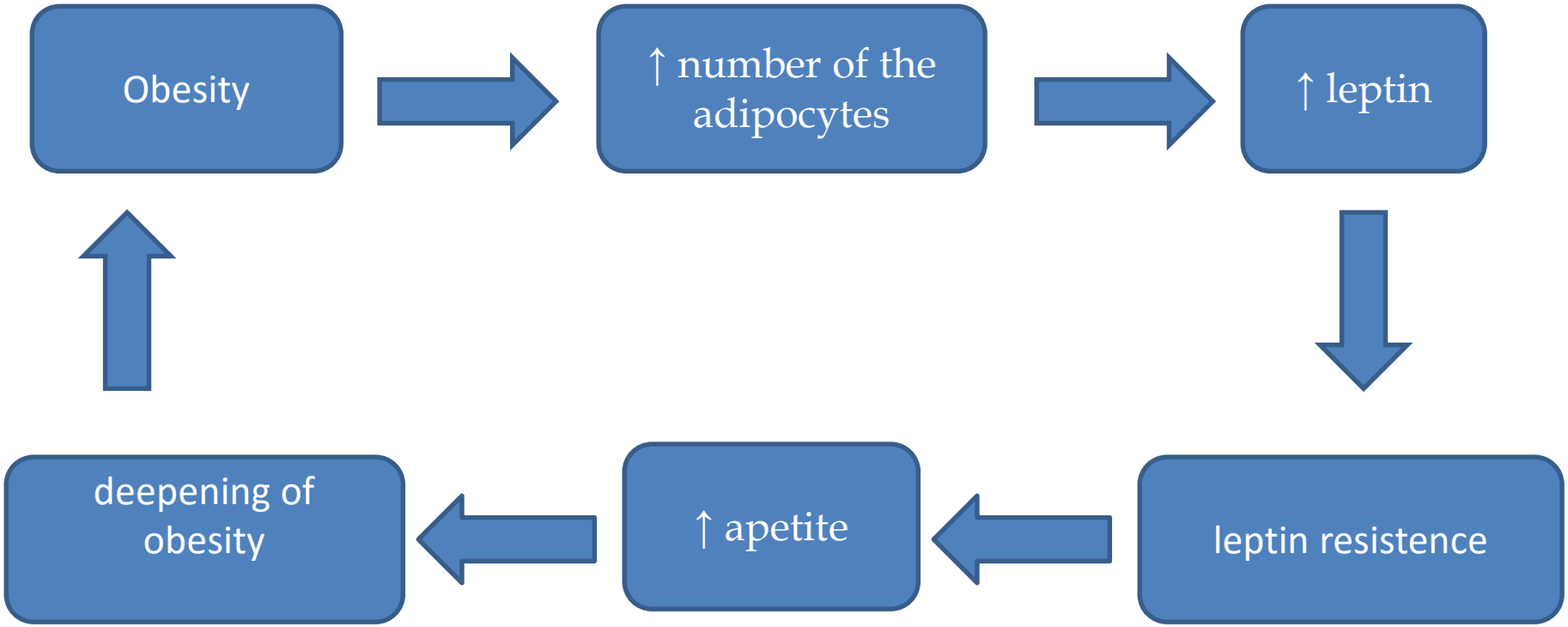
Leptin is the first discovered adipocytokine

It also takes part in the reproduction regulation having a considerable influence on the ovary function

There is evidence that increased leptin levels may cause follicular arrest

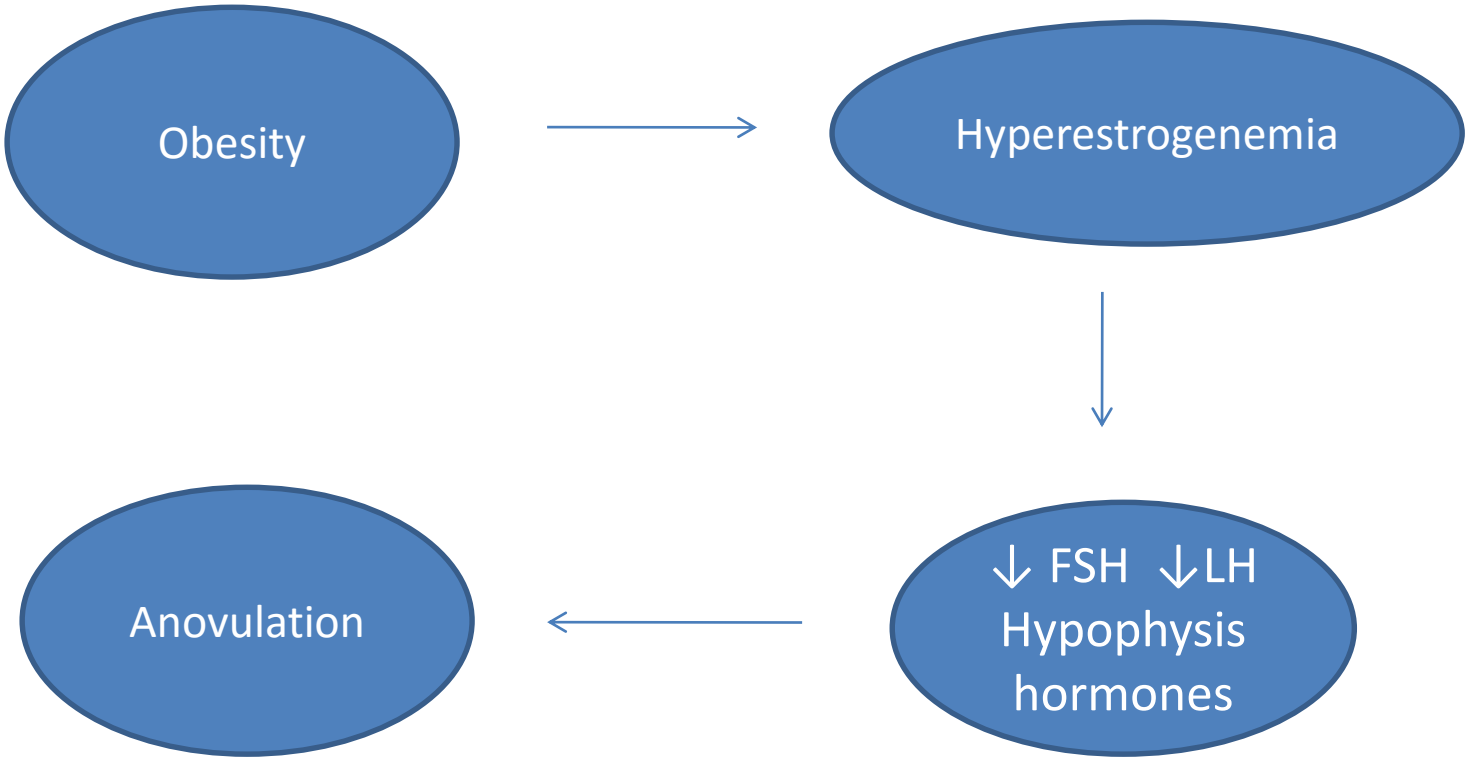
When one eats → leptine ↑→ suppresses the hypothalamic center for hunger and one stops eating.

Obesity and leptin



Obesity and ovarian function

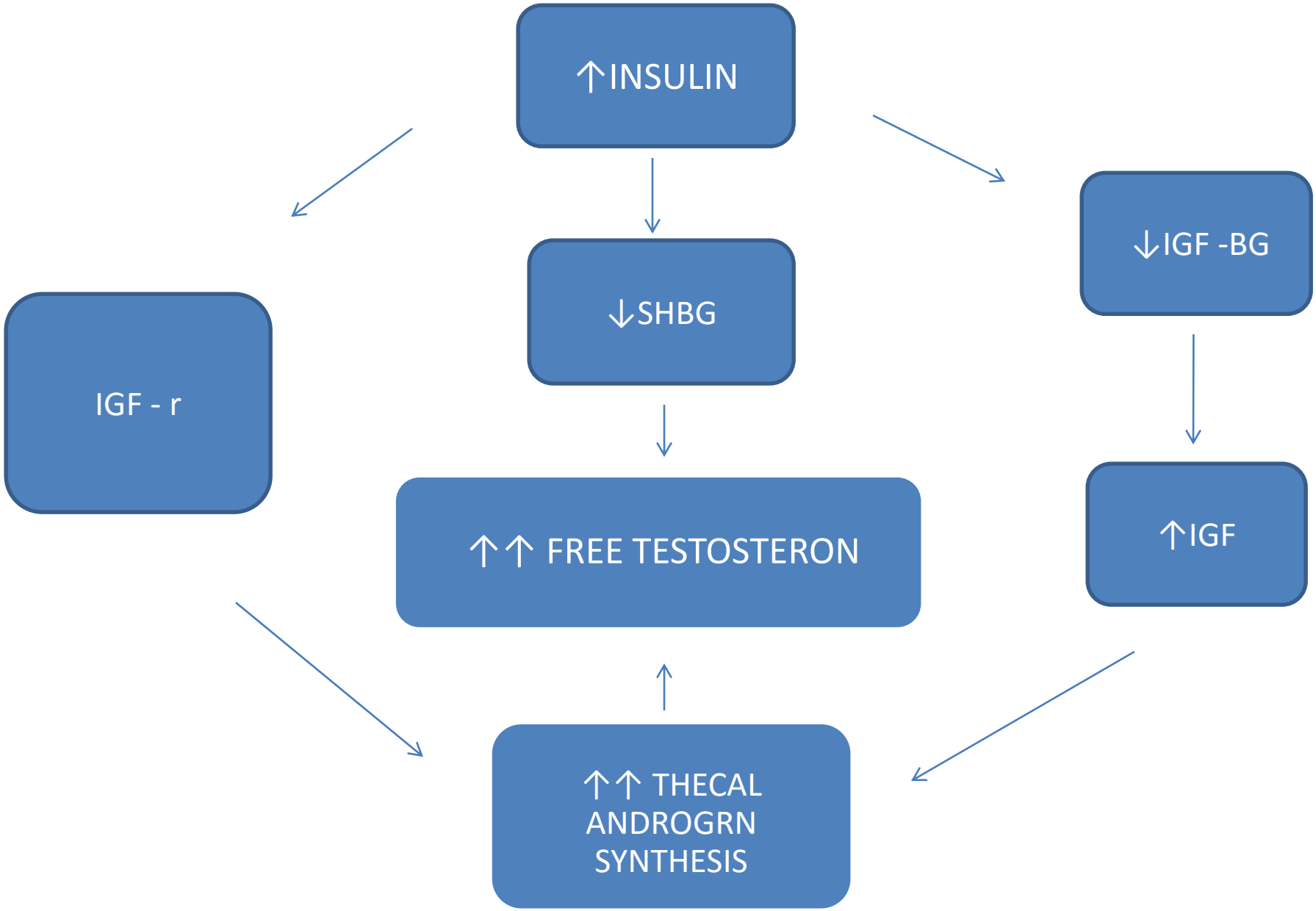
another endocrine function of the adipose tissue



Metabolic function of the adipose tissue

- Obesity is related to increased serum insulin levels and to peripheral insulin resistance
- Insulin resistance is one of the main key factors for ovarian dysfunction

HYPERINSULINEMIA AND OVARIAN FUNCTION



Conclusion

Obesity and overweight are strongly related to the gynecological health and later reproductive function of the female adolescent