Polycystic Ovary Syndrome (PCOS)

Polycystic ovary syndrome has now been renamed polyendocrine metabolic ovarian syndrome (PMOS). It is getting commoner. About one in eight women in the UK now have this illness. PCOS can lead to irregular or absent periods, weight gain (particularly around the abdomen), acne, excess hair and sometimes infertility. There is often an excess of visceral fat (fat around organs like the liver). A test for hormones and sometimes an ultrasound scan will normally confirm the diagnosis. In PCOS women overproduce male sex hormones. Typically, blood tests show higher levels of male hormones (androgens and testosterone).

The standard medical treatment has been drugs that block male hormones (Dianette, spironolactone). These can help with acne and, more slowly, with excess hair. Another drug that is sometimes used is the diabetic drug metformin. This can be used where there is insulin resistance (see below). GLP-1 drugs like Ozempic, may also help with side effects such as excess hair and weight gain. Although they are not yet approved for PCOS, they are often prescribed off-label. However, standard medical treatment will not cure this disease; it only controls symptoms.

Causes of PCOS

The exact cause of this disease is not known but **the huge increase in this disease, and similar hormonal disorders, in recent years suggest a major environmental cause.**

The most likely culprit is hormone disrupting chemicals (often called "gender-benders"). Chemicals which disrupt hormones are widespread in the environment and have caused global problems with hormone disruption in wildlife. They can cause masculinising or feminising changes. For instance, one third of male fish in British waters now show feminising sex changes. In PCOS the problem appears to be chemicals that mimic male hormones.

A recent study compared 71 women with PCOS with 100 women without the disease and found that blood levels of an oestrogenic chemical called **bisphenol A (BPA) were 60% higher in lean women with PCOS** and 30% higher in obese women with PCOS (in obese women chemicals are more easily stored in the fat cells). What was interesting was that, as the levels of BPA in the blood increased, so did levels of testosterone and androstenedoine (an androgen) suggesting these chemicals were causing the disease.

Rats exposed to BPA are known to develop **cysts on their ovaries** making this association even stronger. BPA is a chemical

found in the plastics and used to wrap food. It is found in linings of cans, and in plastics such as those used for bottled water. Rigid plastics containing the recycling logo "7" will contain BPA. Microwaving food in plastic containers or with plastic covers can increase exposure as can leaving plastic water bottles in a hot place. It is very unlikely that BPA is the only chemical to have this hormone disrupting property. It is well established that many chemicals can have masculinising effects. These include pesticides, most plastics and phthalates.

A particular concern is perfumes. All of major brands of perfume have been found to have three to six different gender-bender chemicals in them. Levels of endocrine disruptors can build up over time. Read the label. The label "fragrance" usually means endocrine disrupting chemicals are being used, but other endocrine disruptors include methyl benzylidene and bisphenol A. Avoid those with the label "fragrance", unless it says "phthalate-free". Some perfumes are available that are free of endocrine disruptors such as Henry Rose and Abel. Another useful tip is to use the perfume on your clothes not on your skin, as most chemicals are rapidly absorbed through the skin.

Avoiding these chemicals and perfumes as much as possible. Once they are in the body, they are difficult to get rid of, but exercise, saunas and fasting (usually on fresh juices) can help. See leaflet on Toxicity for other measures.

Diet and Androgens

Reduce your exposure to male hormones. Animal products usually contain the highest concentration of pesticides and chemicals as chemicals concentrate more as they go up the food chain. The worst food is milk. Milk now contains some milk from pregnant cows. This increases the amounts of hormones in the milk and depending on the stage of pregnancy it can be 5 to 30 times that in milk from a non pregnant cow. This has been postulated as a factor in the increase of hormone dependent cancers such as breast and prostate cancer, but is almost certainly a factor in other hormone-related conditions such as PCOS. Milk also contains growth factors which stimulate cell growth. This is best avoided in a condition where there is excess growth of cysts like PCOS.

Soya increases ovarian cysts in sheep.

Treatment Options:

Losing Weight

Losing weight is beneficial and studies suggest losing as little as 5% of your weight helps balance hormones and helps the menstrual cycle to become more normal.

Insulin Resistance

Many women with PCOS have insulin resistance. This can be tested by taking bloods for fasting lipids. Typically, if there is insulin resistance this test will show raised triglycerides and reduced high density lipoprotein (HDL). (See leaflet on metabolic syndrome).

What does insulin resistance mean? Every time you eat sugar or refined carbohydrates, your pancreas produces insulin to bring your sugar level down. If you keep eating these foods, then your cells start to ignore the insulin signal. So, the body has to put out more insulin to get its message through and you have insulin resistance. Why is this important?

All oestrogens start out as male hormones called androgens. An enzyme called aromatase converts these male hormones to female hormones in both sexes. **In PCOS there is a problem with this conversion so you end up with too little female hormone and too much male hormone.** What blocks it? The answer is **insulin**. Insulin can also block luteinising hormone (LH) which triggers ovulation.

What should you do?

Firstly, drastically cut down on sugar. This is not as easy as you think. The average sugar consumption is 23 teaspoonfuls a day. The reason it is so high is that most of it is hidden. A 12-ounce soft drink contains 8 teaspoonfuls. You will know about the obvious foods such as sweets, biscuits and cakes. Most bread contains lots of sugar and sugar can be extremely high levels in some breakfast cereals and yoghurts. It is added to nearly all processed food. It can be quite hard to find foods without sugar. It is almost always high in foods labelled as low fat. Sucrose, fructose and dextrose are all sugars and high fructose corn syrup is probably the most dangerous sugar. It can be found in most processed foods.

Secondly, refined carbohydrates such as white bread, white flour, pasta, white rice and nearly all cereals (which also contain lots of sugar and salt) are nearly as bad and for the same reason. Replace them with wholemeal breads and wholegrain rice. Even brown and granary breads are partially refined.

The other substance which is a problem here is hydrogenated fat (also called trans fat). These are found in nearly all cooking oils (except olive oil), most margarines, fried foods and the majority of processed foods.

You need a low carbohydrate diet (strictly speaking a low refined carbohydrate diet) if you have insulin resistance. Avoid milk. The Mediterranean diet is a good diet for PCOS. Keep away from chemicals wherever possible (remember anything you put on your skin is absorbed into your body and anything you breathe in, such as aerosols or air fresheners, goes straight into your body through your lungs). Eat organic where possible. In the early stages keep all carbohydrates low.

Another way of bringing down insulin is to use **a "glucose-flattening" regime to avoid spikes of glucose** after food (see flattening the glucose curve" in the diabetic leaflet or read Glucose Revolution by Jessie Inchaupse. This can make a big difference. In the Duke's study a glucose-flattening regime reduces insulin by 50% and testosterone by 25%.

Also see metabolic syndrome leaflet for further tips on diet.

UltraProcessed Foods (UPFs)

UPFs make up 55% of the diet in the UK. These foods are bad news for everyone but particularly for conditions like PCOS as they increase insulin resistance, make weight gain more likely, deplete nutrient levels and add to the chemical load. UPFs are addictive and often lead to snacking which also pushes up insulin. Reducing UPFs and increasing wholefoods can make a real difference. Expect sugar craving as you reduce these but keep going and it will settle.

Exercise

Exercise has been shown to independently reduce insulin resistance and also reduce the number of follicles in the ovary. Ideally do three hours of moderate activity and two hours of vigorous activity every week. Exercise also helps excretion of chemicals (but you need to shower after or they will get reabsorbed). This is also true of saunas.

Supplements

There is some data to suggest that some supplements can help although the mainstay of treatment is diet and exercise and avoiding harmful chemicals.

The most promising nutrient for PCOS may be myo-inositol. This blocks male hormones and improves insulin resistance. Double-blind studies have found it not only reduces insulin resistance but improves blood pressure and help weight loss. The normal dose is 4 grams daily. Patients with PCOS may have a problem metabolising myo-inositol to D-chiro-inositol. D-chiro-inositol can also be

supplemented, at a dose of 100mg, daily but may be a harder supplement to find.

A study of women with PCO and high insulin found that when they took N Acetyl Cysteine (between 1.8 and 3 grams daily) for 6 weeks their insulin levels dropped. This is generally available from health food shops.

In one study taking a tablespoonful of apple cider vinegar daily restored ovarian function in four out of seven women within a few months.

Chromium deficiency can cause insulin resistance and studies have shown chromium can reduce insulin levels. Chromium is part of the insulin molecule and makes insulin more active. The chromium supplement recommended in a US government report was chromium polynicotinate. Over 90% of chromium is normally refined out of carbohydrates.

One study suggested Vitamin D can help and there is a little evidence that spearmint tea reduces testosterone levels.

Facial hair can be helped by herbs such as agnus castus, black cohosh and dong quai. Use for at least three cycles.

PCOS patients are often deficient in iodine. Iodine is important in other hormonal disorders such as fibrocystic breast disease. It is simple and cheap to supplement. See iodine leaflet for more details.

An interesting aspect of this is that polycystic ovary is common in farm animals such as cows where it is known to be associated with selenium deficiency. As far as I know no-one has used this treatment in humans but is might be worth considering, not least because it helps detoxify chemicals. Try selenium 200 micrograms daily.

Other Approaches

Alisa Vitti had severe PCOS and doctors were unable to help her and she searched for years to find a solution. She eventually found an approach where she believed she could support each stage of her menstrual cycle with diet and lifestyle change. She developed a protocol to 1) control her blood sugar 2) support the adrenal glands (which are usually overstressed in PCOS) 3) get in synch with the menstrual cycle. After her treatment she lost 60lb, stabilised her moods and began to ovulate and have periods monthly. Her book Womancode (Hay House) described her methods.

The leaflet oestrogen dominance gives more information on hormone control.