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# A STUDY ON PREVALENCE AND KNOWLEDGE OF POLYCYSTIC OVARY DISEASE AMONG PROBLEMS AND SOLUTION

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### ABSTRACT

To summarize promising areas of investigation into polycystic ovary disorder and to stimulate further research. Polycystic ovary disorder is the main cause of female infertility worldwide and is associated with a substantially increased lifetime risk of co morbidities, including type 2 diabetes mellitus, psychiatric disorders and gynecological cancers. Evidence from preclinical female animal models links maternal androgen excess with the development of PCOD-like features and associated alterations are regulating the reproductive axis. RU486 is an antagonist of progesterone receptor, and most commonly used as contraceptive. However, whether RU486 is correlated with PCOD remains unclear. Atrial natriuretic peptide (ANP) is a small peptide with natriuretic and diuretic functions, and its availability to be used in PCOD treatment is unknown. Depending on diagnostic criteria, 6% to 20% of reproductive aged women are affected. Symptoms of PCOD arise during the early pubertal years. Both normal female pubertal development and PCOD are characterized by irregular menstrual cycles, an ovulation, and acne.

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### 1. INTRODUCTION

- The polycystic ovary disorder (PCOD) is a hyper androgenic disorder associated with chronic oligo-anovulation and polycystic ovarian morphology.
- Most women with PCOD are also overweight or obese, further enhancing androgen secretion while impairing metabolism and reproductive functions and possibly favoring the development of the PCOD phenotype.
- The definition of PCOD has led to an impressive increase of scientific interest in this disorder, which should be further directed to improve individualized clinical approaches and, consequently therapeutic strategies.
- Polycystic ovary disorder (PCOD) is a complex condition characterized by elevated androgen levels, menstrual irregularities, and/or small cysts on one or both ovaries.
- The prevalence of PCOD has increased with the use of different diagnostic criteria and has recently been shown to be 18% (17.8 ± 2.8%) in the first community-based prevalence study based on current Rotterdam diagnostic criteria.
- PCOD is diagnosed with hyperandrogenism, menstrual irregularities, and varying size of cysts in ovaries, although substantial differences exist between individuals. This multifactorial conditions are develops in adolescents who are in high risk for the emergence of several comorbidities including like obesity, type II diabetes, infertility, endometrial dysplasia, cardiovascular disorders, and psychotic disorders.
- To address some important concerns of PCOD and especially its possible treatment with nutraceuticals, a panel of Italian experts convened webinar on February 3, 2020, after an independent review of the literature.

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### 2. IDENTIFICATION OF POLYCYSTIC OVARIAN DISEASE

- PCOD is a common disease (actually a group of symptoms) in young girls and women. In the last ten years, the disease has spread like a plague in India. Many women have no idea that they have this disease.
- Often, the disease is diagnosed by going to a doctor for a different problem.
- About 15% to 20% of women in India suffer from this disease. This means that at least one in four or five women around you may have the disease. The rate is even higher in big cities.

- About 70% of women with the disease have difficulty conceiving.
- PCOD is actually a set of symptoms. If some symptoms are found together, it is called 'symptom set'. Irregular menstruation, infertility, unwanted facial hair growth, pimples (Adolescence), weight gain, hair loss on the scalp and many other symptoms are found in PCOD.
- Although the exact cause of PCOD is not yet known, many experts agree that the disease is related to the so-called modern lifestyle.
- PCOD is often found in women in many close relationships in the family. If your mother, aunt, elder sister has this disease, you are more likely to become a king. It is thought to have caused the chromosome defect.
- Persistent high calorie diets, vitamin deficiencies, lack of exercise, and stress all contribute to PCOD. Growing weight causes hormonal imbalances and irregular periods. Probably a factor as to why they're doing so poorly.

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### 3. COMMON SYMPTOMS OF PCOS

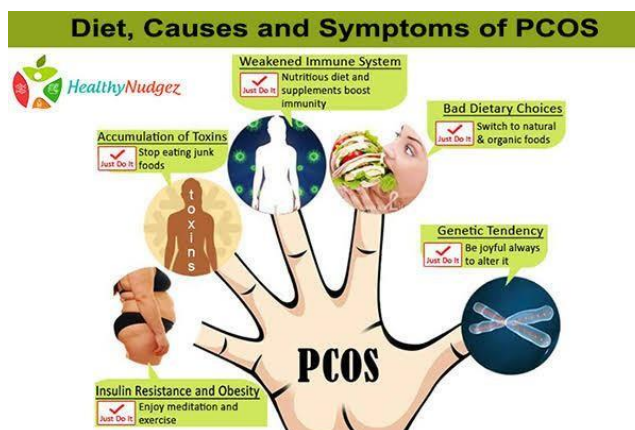
PCOS is very common in recent days and affects many women. While these symptoms can be treated, some women do not even face any of the symptoms, thus it may go undiagnosed. The symptoms of PCOS can get worse if one is overweight or obese. Here are some symptoms of PCOS that you can notice:

- Irregular periods or no periods at all
- Excessive pain during periods accompanied with heavy flow
- Excess male hormones or androgen that can cause hirsutism i.e. growth of hair on the face, back, chest or buttock
- Oily skin and breakouts like acne
- Thinning of hair or hair loss resulting in male pattern baldness
- Excessive weight gain
- Difficulty in conceiving
- Pain in the pelvic area
- Anxiety and depression

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### 4. CAUSES OF PCOD

- PCOD was first described in modern medicine by Stan and Levinthal in 1935. In his book, he wrote about seven women who had symptoms such as menstrual cramps, facial hair, and swelling of the testicles.
- Even before that Hippocrates (377 BC to 160 BC) wrote: Women whose menstruation is less than three days or irregular, have strong, firm, smooth skin. Yet they are not afraid to go day by day and they do not go day by day.
- This description, written over two thousand years ago, is similar to PCOD in terms of menstrual irregularities, male appearance, shortness of day, obesity, etc.
- The human body has evolved over thousands of years. In prehistoric times, the human body developed the ability to store energy to cope with famine, drought, natural disasters, and childbirth.
- Things like 'PCOD' helped women to survive in those days. The PCOD may have been a boon to keep the distance between the two pregnancies, the dangers of childbirth, to prevent death.
- Given the low age of previous pregnancies and a lot of physical exertion, low rates of obesity, the incidence of day passing among women with PCOD will be higher than today. The severity of PCOD symptoms has been exacerbated by recent diets, sedentary lifestyles and constant stress.



#### 4.1 How responsible are we to PCOD?

- It's not all your fault. Some of the defects are due to our chromosomes, some of the defects are due to the chemical elements in the environment around us. But there are definitely some faults.
- The disease is more prevalent in cities than in villages. It is more common in educated women than uneducated women. It is more common in working women and housewives than in hard working women.
- This means that no one should immediately blame women for their careers. Just as men are more prone to heart disease, high blood pressure and diabetes than women due to poor lifestyle and stress, so too are the effects of extra stress and so-called modern lifestyle in women in the form of diseases like PCOD.
- PCOD and other lifestyle related ailments are cursed by the so-called modern lifestyle that entangles us in the cycle of chauvinism. This is the curse we have given ourselves.

#### 4.2 Causes That Cause PCOD Collectively:

Are as follows:

- Wrong lifestyle
- Having a history of PCOD in the family Chromosomal defect
- Some chemicals in the environment Stress
- What exactly is wrong with the lifestyle that causes PCOD?45.3 Diet:

#### 4.3 Diet:

- Many nutrients, minerals, vitamins, proteins, carbohydrates, fats are required in the diet for seed production, balance of various hormones, ovulation growth, regular menstruation.
- There is a big difference between the life of a woman today and the life of a woman fifty years ago. The woman who broke the shackles of thousands of years today Has become independent. Fighting on both the family and the job front, she is exhausted. So her body needs more energy, more vitamins, more minerals. But does her food contain so many nutrients?
- Hybrid seeds, chemical fertilizers, pesticides have reduced the nutrients in fruits and vegetables. Soil fertility is reduced. Lack of time between two crops to replenish the nutritional value of the soil, taking the same crop continuously in the same soil also reduces the nutritional value of the crop.
- As we move away from agriculture, our umbilical cord is breaking with food. We have vegetables and fruits from distant villages. Until then, many days have passed since it was broken. Transportation, storage, processing all reduce the nutrients in it.
- Then your habits! Eating at night, eating bread, biscuits, fast food also deprives us of nutritious food. Also, storing food in the fridge, chopping it, etc. further reduces its nutrients. Some vitamins in some fruits and vegetables come down naturally during ripening; But if they are grown artificially for early sales, those values will not be enough.
- In addition, water-soluble vitamins like Vitamin C and beta carotene are destroyed during cooking. In this way the vitamins and nutrients in the food are lost in many ways till it reaches your plate from the field. The body does not get enough nutrients due to lack of fruits and

vegetables in the diet, falling prey to the trend and consuming unnecessary fiber in the diet, not cooking enough natural food, foods with high glycemic index in the diet.

- You Body excess Does, but Pari Favorite,And yesterday Even better To eat Today chemical Contaminated water To fight,Everyday body Go. Several Of scarcity There were complaints Thom The human body ban taxinh Of insulin Dissolve Is. In To Insulin Of the body
- The more nutrients in your diet, the more food your body demands. Then we say, 'I try so hard, but I can't live without eating something spicy!'
- As a result, every Sunday Panipuri, Bhelpuri! Also, sometimes the husband likes it, sometimes the children want it, so Pavbhaji, noodles, pizza and other things start to lose weight over time. Eating some foreign food that is inconsistent with your chromosomes as 'healthy'. Today we live in a toxic world. Toxic chemicals are everywhere.
- Toxic chemicals in food, toxins in air, contaminants in water and heavy minerals! Your body has a mechanism to fight toxins, to get them out; But nowadays various chemicals put stress on the body system on a daily basis. The system gets tired of fighting them. By making many small complaints, the body makes us aware of the lack of nutritional value. E.g. Bumps are a common complaint of many; But it is a sign of magnesium deficiency.
- As Thomas Edison has said, "The doctors of the future will not cure the human body with drugs, but with proper nutrition will prevent and cure diseases."
- Insulin becomes dull (insulin resistance), so what exactly? – Insulin are produced in the pancreas to overcome the sugar. The main function of insulin is to take blood glucose into cells, break it down and use it for energy production. Insulin resistance means that the cells in the body do not respond to insulin. Because insulin is depleted, glucose / sugar cannot enter the body's cells easily. To this situation
- The body secretes the much more insulin to cope. Insulin is a growth hormone produced by the body and its excessive production causes testosterone and other androgenic (male) hormones to be produced in the ovaries. Testosterone is a male hormone. Symptoms include weight gain, facial hair, and pimples. Increased weight increases insulin levels and makes weight loss more difficult.



### Symptoms of insulin dysfunction:

- 1) Enthusiasm throughout the day.
- 2) Frequent loss of appetite.
- 3) Constantly craving sweets.

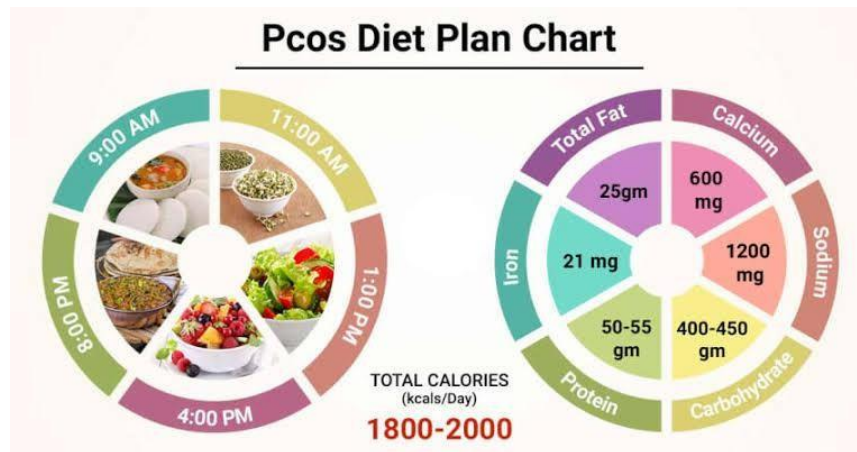
### Causes of insulin dysfunction:

- Overeating In a sedentary lifestyle, the portion size of the diet needs to be small
- Dietary Carbohydrates / Carbohydrates- Specially processed
- High levels of carbohydrates (flour, polished rice, etc.) 3. Availability of junk food Foods on the market are high in calories; But the nutritional value is very low.
- Eat less non-calorie foods like fruits, vegetables, grains. Diet As much as Out of it So To get Intime More Insulin Just that Containing Is. Stress So

- Moderate diet after regular time, low GI diet, Proper distribution of carbohydrates in the diet throughout the day Not following dietary rules.
- Eating sweet, processed foods that lowers insulin levels Suddenly increases.
- Constant stress.

#### 4.4 Diet and insulin

- The body gets energy through blood sugar or glucose, which is formed in the body after digestion of carbohydrates in the diet. The finer the form of carbohydrates (e.g. flour, sugar, polished rice) the faster it is digested and the faster the sugar is obtained.
- E.g. Tea contains liquid sugar. It gives instant energy. On the other hand, after eating chapati, it takes about an hour to get sugar from it. How long sugar is produced after eating is called 'Glycemic Index (GI)'.
- In the next section, 'Diet and Nutrition Values', we will learn more about Carbohydrates, Glycemic Index (GI) and its role in insulin depletion. For now, let's just say that the higher the glycemic index (GI) content of the diet, the higher the rate of insulin intake. And the faster insulin is secreted, the more dull it becomes.



#### 4.5 Stress and insulin:

- As stress increases, the body's need for energy increases and so does the secretion of insulin.
- Because of the hypertension the hormone cortisol is produced, they cause excessive production of insulin and eventually become resistance.

## 5. DIFFERENT TYPES OF PCOS AND WHAT KIND OF PCOS DO YOU HAVE

There are four types of PCOS:

- Insulin-resistant PCOS
- Inflammatory PCOS
- Hidden-cause PCOS
- Pill-induced PCOS.

#### 5.1 Insulin-resistant PCOS:

This is the most common type of PCOS. This type of PCOS is caused by smoking, sugar, pollution and trans-fat. In this, high levels of insulin prevent ovulation and trigger the ovaries to create testosterone.

- If you have been told by your doctor that you are a diabetic on borderline and your glucose tolerance test was not normal. If you have increased levels of insulin and you are overweight, then you might be one having insulin resistance PCOD.

- TIP- QUIT SUGAR! just shun the sugar, it should be your first step. A little amountof sugar is healthy but by taking it in large quantities you are contributing to the insulin resistance. To prevent insulin resistance PCOS you can take inositol. A period of almost six tonine months is needed to improve from this type of PCOS as it is a slow process.

### 5.2 Pill-induced PCOS:

- This type is the second most common PCOS. It gets developed due to the birth control pills which suppress ovulation. For most of the women, these effects do not last long and they resume ovulating after the effect of the pill is over. But some women do not resume with ovulating for months and years even after the effects of pills get over. During that time women should consult the doctor.
- If you experience regular and normal periods before starting with the pills then this might be a sign of Pill-induced PCOS. Or if your levels of LH are increased in the blood test then this could be a sign too.[5,6]

### 5.3 Inflammatory pcos: -

- In PCOS due to inflammation, ovulation is prevented, hormones get imbalanced and androgens are produced. Inflammation is caused due to stress, toxins of environment and inflammatory dietary like gluten.
- If you have symptoms such as headaches, infections or skin allergies and your blood tests show that you are deficient of vitamin D, your blood count is not normal, increasedlevels of thyroid then you might be one having inflammatory PCOS.
- TIP- DON'T TAKE STRESS! Stop consuming inflammatory foods like dairy products,sugar or wheat. Start taking supplements of magnesium as it has anti-inflammatory effects. The process of improvement takes about nine months as it is a slow process.

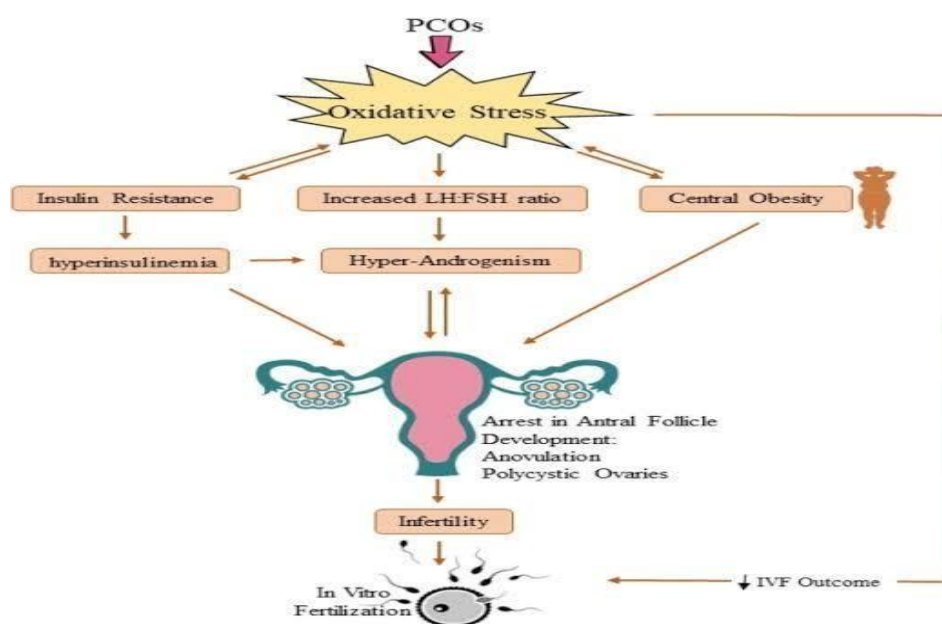
### 5.4 Hidden pcos:

- This is a simpler form of PCOS, once the cause is addressed then it takes about three to four months to get resolved. Causes of Hidden PCOS: Thyroid disease, deficiency of iodine (ovaries need iodine), vegetarian diet (it makes you zinc deficient and the ovariesneed zinc) and artificial sweeteners.
- If you are already done with numerous natural treatments for PCOS and nothing seemslike working then consult the doctor and gather more information about it.[5,6]

## 6. PROBLEMS

### 6.1. Antioxidant Role

Oxidative stress:

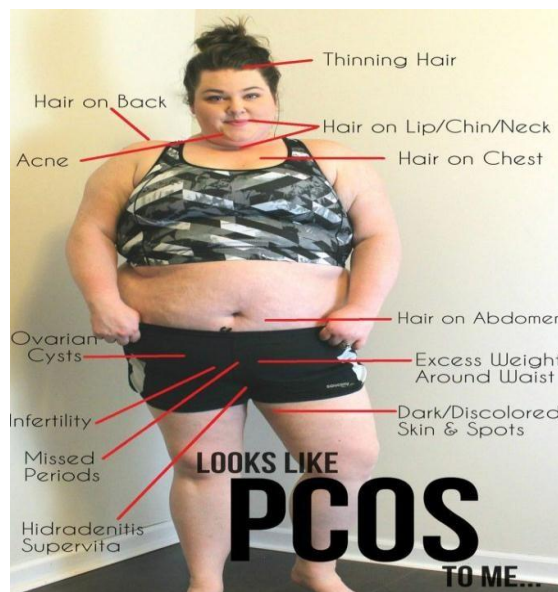


Free radicals secreted by metallurgy invite more metal-borne diseases. In Research shown that arterial disorders, cancer, and arthritis are the factors that contribute to aging. The energy is produced in the form of ATP from the oxygen in the cells, an electron atom is released. The four atoms are combined together to form a water molecule; But this is a natural action is not always same.

The Four electron atoms are required for the formation of water from oxygen. Sometimes an electron atom doesn't get a match called as 'free radical'. The electron is negatively charged needs a positively charged partner. If such 'alone' is not immediately neutralized with the use of electrically charged free radical antioxidants, it can damage cells, muscles, blood vessels, proteins, and also chromosomes.

- The part of the body is most affected by free radical is a part of the body that start to wear out. Such an hit on the eye it may lead to cataracts, blood vessels, heart disease and paralysis.
- We know that oxygen gives us life; However, the same oxygen from the burning of metals causes aging and many more diseases.
- Antioxidants are substances that give electrons to free radicals. So that they free radicals are faded. There are so many types of antioxidants that are available in our body. However, not all types of antioxidants can be produced in our body. Many antioxidants you need to get from diet or vitamin pills. As long as the free radicals and antioxidants produced in the body are in equal proportions, the side effects of free radicals do not appear; However, when the levels of free radicals are higher than those of antioxidants, oxidative stress occurs.
- Most of the antioxidants you get from your diet and fruits. E.g. Vitamin C, Vitamin A, Vitamin E, Beta Carotene etc. In addition to this, you get many antioxidants like coenzyme Q10, alpha lipoic acid and colorful bioflavonoids in your diet.
- It is important to understand that many antioxidants can work together to neutralize free radicals. E.g. Vitamin C is a water soluble vitamin. There is plenty of water in the lining of every cell of our body. So vitamin C may work better there. In the same way different antioxidants work in different places. In addition, antioxidants need the help of other nutrients.
- E.g. Minerals like selenium, copper, zinc etc. Moreover B1, B2, B6, B12 are the co-operative components. Or We can only win this battle if all the nutritional values are included in the diet. Research has shown that inflammation of cells caused by oxidative stress is a major cause of PCOD, along with heart disease, semen formation, blood pressure, and diabetes. Oxidative stress impairs many bodily functions. It also involves the balance of hormones.
- One or two generations ago, our diet consisted mostly of fresh grains, vegetables, and fruits; But urbanization, marketing, pollution have reduced the amount of antioxidants in the diet. Therefore, it is necessary to increase the intake of vitamins and minerals along with diet. Is a male hormone. This causes love on the face like men, hair loss, pimples, belly fat like men. The skin becomes thick.

#### 6.1.2 Excess fat, bulkiness:



This symptom appears to be the result of PCOD, as well as the cause of PCOD. More due to wrong dietary habits

#### Lack of exercise:

- Everyone thinks we have too much of a rush. But if you think about it, you realize that working on the computer in the office, commuting by car, watching TV when you come home is your lifestyle.
- There is not much room for walking, running, jumping, sitting on two legs, lifting weights, grinding, pounding, grinding while cooking or doing housework. Living a sedentary lifestyle,
- lack of exercise, and weight-bearing occupations gradually reduce muscle size. Nowadays, it is not possible to walk even half a step more than before. Muscle is the only external source of burning fat or energy in the body.
- Walking, running, weight lifting, yoga are all different forms of exercise. Strength, toughness, flexibility, cardiovascular strength

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## 7. SUMMARISE THE MAJOR PROBLEM/S.& THEIR ALTERNATIVE SOLUTION

### 8.1.1 Irregular periods

- A lack of ovulation prevents the uterine lining from shedding every month. Some women with PCOS get fewer than eight periods a year.

#### Solution –

- Medicines are available to treat insulin resistance and balance hormones to correct menstrual cycles.
- Usually, PCOS is treated aggressively for patients who are willing to conceive. Adolescent patients are treated with hormones and metformin to regularize the periods and insulin resistance

### 8.2.1 METFORMIN-

- **Advantage** -Metformin improves menstrual cycle regularity and lowers body mass index (BMI), testosterone, and luteinizing hormone (LH) within 6 months of treatment in women with polycystic ovary syndrome (PCOS) who are normal weight or overweight, new results
- **Disadvantage**-Gastrointestinal Issues, Vitamin B12 Deficiency, Lactic Acidosis
- **Infertility** To get pregnant, you have to ovulate. Women who don't ovulate regularly don't release as many eggs to be fertilized. PCOS is one of the leading causes of infertility in women
- **Solutions**- With treatment, most women with PCOS are able to get pregnant.
- 
- The majority of women can be successfully treated with a short course of tablets taken at the beginning of each cycle for several cycles.
- If these are not successful, you may be offered injections or IVF treatment. There's an increased risk of a multiple pregnancy (rarely more than twins) with these treatments.
- A medicine called clomifene is usually the first treatment recommended for women with PCOS who are trying to get pregnant.
- Clomifene encourages the monthly release of an egg from the ovaries (ovulation).
- If clomifene is unsuccessful in encouraging ovulation, another medicine called metformin may be recommended.
- Metformin is often used to treat type 2 diabetes, but it can also lower insulin and blood sugar levels in women with PCOS.
- As well as stimulating ovulation, encouraging regular monthly periods and lowering the risk of miscarriage, metformin can also have other long-term health benefits, such as lowering high cholesterol levels and reducing the risk of heart disease.
- Metformin is not licensed for treating PCOS in the UK, but because many women with PCOS have insulin resistance, it can be used -off-label in certain circumstances to encourage fertility and control the symptoms of PCOS.
- Possible side effects of metformin include nausea, vomiting, stomach pain, diarrhoea and loss of appetite.



- As metformin can stimulate fertility, if you're considering using it for PCOS and not trying to get pregnant, make sure you use suitable contraception if you're sexually active.

### 8.2.2 CLOMIFENE

#### Advantage:

- Clomiphene citrate is traditionally the first-line drug used to induce ovulation in women with anovulation due to PCOS [2].
- This drug has both estrogenic agonist and antagonist effects.
- It produces its effect principally by blocking the estrogenic receptors in the hypothalamus to increase the endogenous follicle-stimulating hormone (FSH) to bring about folliculogenesis and ovulation.

#### Disadvantage:

- Abnormal vaginal/uterine bleeding, breast tenderness or discomfort, headache, nausea, vomiting, diarrhoea, flushing, blurred vision or other visual disturbances, or ovarian enlargement presenting as abdominal or pelvic pain, tenderness, pressure, or swelling.
- Clomid may increase the likelihood of multiple births.
- Ovarian hyper stimulation syndrome (OHSS) may occur: ovarian enlargement, severe GI symptoms, abdominal swelling, shortness of breath, pleural effusions, decreased urination. Seek medical care if these symptoms develop.

#### Heavy bleeding:

- The uterine lining builds up for a longer period of time, so the periods you do get can be heavier than normal.

#### Hair growth:

- More than 70 percent of women with this condition grow hair on their face and body — including on their back, belly, and chest. Excess hair growth is called hirsutism. Solution- Skin treatments are available for hair growth.

#### Acne:

- Male hormones can make the skin oilier than usual and cause breakouts on areas like the face, chest, and upper back. Solution- Skin treatments are available for acne, pigmentation

#### Weight gain:

- Up to 80 percent of women with PCOS are overweight or obese. Both obesity and PCOS increase your risk for high blood sugar, high blood pressure, low HDL (–good!) cholesterol, and high LDL (–bad!) cholesterol.
- Together, these factors are called metabolic syndrome, and they increase the risk for heart disease, diabetes, and stroke.
- PCOS makes it more difficult for the body to use the hormone insulin, which normally helps convert sugars and starches from foods into energy. This condition – called insulin resistance
- Can cause insulin and sugar – glucose – to build up in the bloodstream.

#### Solution:

- Losing weight not only cuts your risk for many diseases, it can also make you feel better.
- When you have PCOS, shedding just 10% of your body weight can bring your periods back to normal. It can also help relieve some of the symptoms of polycystic ovary syndrome.

- Weight loss can improve insulin sensitivity. That will reduce your risk of diabetes, heart disease, and other PCOS complications. To lose weight, start with a visit to your doctor.
- The doctor will weigh you and check your waist size and body mass index. Body mass index is also called BMI, and it is the ratio of your height to your weight. Your doctor may also prescribe medication.
- Several medications are approved for PCOS, including birth control pills, antiandrogen medications and Metformin (Glucophage). The anti-androgen medications block the effects of male hormones.
- Metformin is a diabetes drug that helps the body use insulin more efficiently. It also reduces testosterone production. Some research has found that it can help obese women with PCOS lose weight. In addition to taking medication, adding healthy habits into your lifestyle can help you keep your weight under control: Eat a high-fibre, low-sugar diet. Load up on fruits, vegetables, and whole grains.
- Avoid processed and fatty foods to keep your blood sugar levels in check. If you're having trouble eating healthy on your own, talk to your doctor or a dietitian.
- Eat four to six small meals throughout the day, rather than three large meals. This will help control your blood sugar levels. Exercise for at least 30 minutes a day on most, if not all, days of the week. Work with your doctor to track your cholesterol and blood pressure levels. If you smoke, get involved in a program that can help you quit.

### 8.3 MALE-PATTERN BALDNESS.

#### Hair on the scalp gets thinner and fall out.

#### Solutions –

#### Oral Medicines: -

- PCOS hair loss can be treated with oral medications. Your doctor may prescribe you a combination of oral contraceptive pills, anti-androgen drugs, along with other medications to control PCOS and hair loss.
- Oral contraceptive pills work by reducing the production of the male hormone (testosterone) along with increasing the production of the sex hormone binding globulin (SHBG) in the body. Thus, the action of the male hormone is controlled, which reduces the symptoms of PCOS including scalp hair loss, facial hair growth, etc.
- Anti-androgen drugs are widely prescribed for controlling PCOS hair loss. However, you should use it only if oral contraceptive pills haven't given you positive results.
- Your doctor may also prescribe Spironolactone, a diuretic drug that helps to control androgen activity in the body. Cyproterone acetate is another medication that your doctor may prescribe for hormonal and hair loss control.

#### Topical Treatments:

- Along with oral medications, your doctor may also prescribe topical ointments like Minoxidil. It comes as a liquid or a foam that you need to massage on your scalp.

#### Hair Transplant:

- A hair transplant is a common PCOS hair loss treatment. In this process, hair and hair follicles are taken from one area of the scalp and grafted in the area of the scalp, where thinning is prominent. It usually takes a few procedures before you can notice a significant result.

#### Home Remedies:

- PCOS has a direct connection with lifestyle intervention. Weight loss through lifestyle intervention can lower the level of male hormone and reduce the effects of PCOS including hair loss. Here are some quick home remedies to reduce PCOS hair loss:
- Using a soft natural hair bristle comb can be helpful in controlling hair fall.
- Regular exercise can help reduce weight, which controls the male hormone production and in turn, reduces PCOS-related hair loss.

- Switch to healthy diets and stay away from junk foods. A sustainable diet plan also helps to keep your weight in check, thus controlling the male hormone production.
- You may also try different hairstyling techniques to make noticeable hair loss less visible.
- Regular oil massage of the scalp helps in blood circulation, which makes the hair follicles strong. Avoid oils laden with chemicals and opt for natural ones.
- Homemade hair masks with natural ingredients like egg and olive oil also help promote hair growth. Take an egg and mix with a teaspoon of olive oil. Apply it on your hair, working from the roots to the hair tips. Leave it for 20 minutes and then shampoo.

#### 8.4 CYPROTERONE ACETATE

- **Advantages**-Treatment of PCOS with CPA induces important favourable changes regarding hormone parameters associated with hyperandrogenism, significant favourable changes in lipid profile except for triglyceride increase, and no significant change in carbohydrate metabolism (measured by fasting insulin, glucose/insulin index and plasma glucose disappearance).
- **Disadvantage**-Breast tenderness and swelling. Tiredness and weakness (fatigue) Depression or mood changes. Hot flushes or sweats. Swelling in parts of the body (fluid build-up) Weight changes. Liver changes (you will have regular blood tests to check for this) Shortness of breath.

#### Minoxidil:

- **Advantage** -Minoxidil is the only FDA-approved drug for treating female pattern baldness. It's a topical treatment that you apply to your scalp daily. It promotes hair growth and can even give it a thicker appearance
- **Disadvantage**-scalp irritation. Hair growth on other parts of the face or hands that come in contact with the medication.

#### Darkening of the skin:

Dark patches of skin can form in body creases like those on the neck, in the groin, and under the breasts. Dark skin patches of Acanthosis Nigricans are often seen in patients who are overweight, and those with pre-diabetes or Diabetes type 2. Insulin resistance is a necessary factor leading to the development of Acanthosis Nigricans in patients with PCOS. These PCOS discoloured skin patches are often found in the folds of the skin and commonly occur around:

- Armpits
- Groin
- Neck
- Vulva
- Elbows
- Knees
- Knuckle.

Acanthosis Nigricans is not a disease, but usually just a symptom of malfunctioning inside the body regarding sugar metabolism, fat stores, and insulin resistance. Most treatment options focus on targeting these underlying causes through a healthy PCOS diet, exercise, and supplements that naturally correct hormonal imbalances. In most cases, once you have your insulin levels and weight under control, these dark skin patches disappear over time.

#### Solution-

- Topical Retinoids to lighten the skin. Examples include Retin-A, salicylic acid, alpha hydroxy acids and 20 percent urea Dermabrasion is a mechanical process of controlled, surgical scraping of the skin that could make skin lighter Laser therapy can improve the appearance of acanthosis nigricans by removing the top layer of the discoloured skin
- Your doctor may also prescribe drugs that could help correct hormonal imbalances or metformin to get blood sugar levels under control. In some cases, Isotretinoin, which is usually used to treat severe acne, can be prescribed. This is a rather strong drug with many potential side effects and not at all safe if you're trying to get pregnant.

## 8.5 ISOTRETINOIN –

- **Advantage- Isotretinoin** treatment may have beneficial effects on free testosterone, insulin, acne score, and Ferriman-Gallwey score. Solely isotretinoin administration may supply adequate healing in PCOS patients' symptoms complicated with severe cystic acne who is not eligible candidates for OCP use.<sup>[13,14]</sup>
- **Disadvantage-**Isotretinoin treatment significantly decreased Ferriman-Gallwey score, free testosterone, insulin level, haemoglobin level, acne score, and ovarian volume. Increased triglyceride and cholesterol levels were detected after treatment.

### Headaches. Hormone changes can trigger headaches in some women

- **Depression and anxiety-**

Both hormonal changes and symptoms like unwanted hair growth can negatively affect Isotretinoin your emotions. Many with PCOS end up experiencing depression and anxiety

### Solution: -

- Medications and supplements
- No studies have been done on anti-depressants or anti-anxiety medication for treating people with PCOS specifically, but they may be prescribed in the same way they would be to people without PCOS. Medications that help the body use insulin such as metformin may improve symptoms of depression in people with PCOS. Metformin may also help with anxiety symptoms.
- Taking omega-3 fatty acid from fish oil alone, or in combination with Vitamin, may decrease symptoms of depression and anxiety in people with PCOS.

### Chinese Medicine Therapies for PCOS:

- A review of the physiological effect of complementary and alternative therapies to manage PCOS describes the function of acupuncture, Chinese herbs, and dietary supplements when it comes to managing PCOS.<sup>8</sup> For example, acupuncture can improve hormone balance to reduce the menstrual irregularity that can accompany PCOS.
- Acupuncture modulates the somatic and autonomic nervous system, thereby influencing the endocrine system. Indeed, a literature review of four studies on the effect of acupuncture on PCOS found that the therapy might result in positive outcomes.<sup>9</sup> Acupuncture was found to increase  $\beta$ -endorphin levels up to 24 hours and may have regulatory effect on the hormones follicle-stimulating hormone (FSH), luteinizing hormone (LH), and androgen.
- While some limited research exists on the function of herbal medicines and dietary supplements for PCOS, the evidence on their effectiveness is limited as well.
- A meta-analysis of four randomized controlled trials included 344 sub fertile women who had PCOS.<sup>10</sup> The quality of the evidence included in the meta-analysis was poor because all of the interventions were different. One dietary supplement regimen including Chinese herbs improved the pregnancy rate of the women enrolled in that regimen, but there was no evidence that any other PCOS-related health outcome improved, including ovulation.
- Research indicates that lifestyle medicine is the most effective method for managing PCOS. PCOS is more than a reproductive health issue or an irritation involving appearance
- It is a complex endocrine disorder that may affect up to 10 percent of reproductive- aged women, so additional research into causes and development of the condition is required

## 8.6 SOLUTION

### 8.6.1 Most Effective Yoga Poses for PCOS

Did you know that prescribed contraceptives for PCOD can cause severe side effects such as nausea, stomach pain, and abdomen pains? On the other hand, yoga has zero side effects.



### 8.6.2 Bridge Pose or Setu Bandha Sarvangasana

These yoga asanas for PCOS helps in regulating thyroid function, which is crucially linked to PCOS. It relaxes and activates the organs in the abdominal region, thus relieving the symptoms of menopause.

#### Steps to Perform the Bridge Pose

- Lay down on your back and fold your knees, making a right angle between your feet and hips
- Keep your palms facing downwards and place your hands beside your body
- Lift your lower back, mid-back, and upper back off the floor one at a time
- Roll your shoulders back and pull your chest up to the chin
- Keep breathing and hold the pose for 1-2 minutes
- Quick Tips: For optimal results, do this on an empty stomach. This can be done during pregnancy.

### 8.6.3 Sun Salutation or Surya Namaskar



Surya namaskar is listed under the best yoga poses for PCOS. Weight loss, waist, and hip fat shedding, and menstrual cycle regulation can be facilitated by performing the sun salutation yoga pose every day.

#### Steps to Perform Surya Namaskar Yoga Pose:

- Stand straight, keeping your feet together and distributing your weight evenly between both feet

- Relax your shoulders and expand your chest
- Lift both arms from the sides as you inhale, then bring your hands together in front of your chest in a prayer position as you exhale
- Breathe in and stretch your entire body, from heels to the tips of your fingers
- Breathe out and bend forwards to touch your toes, keeping the spine straight
- Push your right leg backwards and keep it straight. Look straight
- Get in the push-up position and hold for 1-2 seconds
- Get in the bhujangasana (cobra pose) position
- Continue breathing in and out as you perform this yoga
- Now get back to standing straight and touch your feet
- Quick Tips: Do not rush the process. Take your time and take multiple 2-second breaks, if needed.

#### 8.6.4 Cobra Pose or Bhujangasana



Bhujangasana, or cobra pose, helps in making the body flexible and relieves stress. This pose is widely included in the list of yoga for PCOD problems

#### Steps to Perform Cobra Pose:

- Lay straight on the floor. Keep your elbows close to your body with palms facing down
- As you inhale, start straightening your arms to elevate your chest off the floor and try to recline backwards as much as you can
- Your navel should be in contact with the ground
- Hold this position for 15-30 seconds before exhaling slowly and descending
- Quick Tips: Start with half and work your way up because you might not be able to execute the entire cobra stance at once

#### 8.6.5 Boat Pose or Naukasana

Naukasana is a yoga practice that focuses on the abdominal muscles and organs. It is also known to control thyroid function.



#### Steps to Perform Boat Pose:

- Lay straight on the floor. Keep your arms straight alongside your body with palms facing down
- As you inhale, start elevating your arms and legs to make a boat-like shape
- Hold this position for 15-30 seconds before exhaling slowly and descending
- Quick Tips: Start with half and work your way up because you might not be able to execute the entire boat pose at once.

#### 8.6.6 Breathing Exercise or Kapalbhathi Pranayam



This one is primarily a breathing technique that focuses on reducing oxidative stress, improving blood circulation in the body, and balancing glandular output. It aids weight reduction by influencing the pancreas in a good way. This is why it is one of the most effective PCOD exercises

#### Steps to Perform Breathing Yoga Exercise:

- Close your eyes and sit in padmasana, with your hands resting on your knees.
- Slowly inhale through the left nostril after blocking your right nostril with your right thumb.
- Exhale after gradually removing your thumb from your right nostril. Block your left nostril with your middle finger while exhaling, then inhale through your right nose.
- Repeat this practice for 15 minutes. Maintain your attention on your breathing.

- Quick Tips: For an optimal impact, do this on an empty stomach. This should not be done during pregnancy

### 8.6.7 Corpse Pose or Savasana

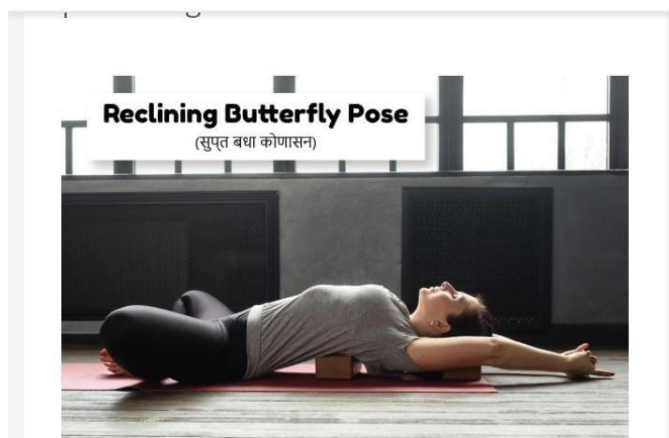


This particular yoga for PCOS might help you de-stress, stress being one of the primary causes of PCOS. Shavasana, or corpse posture, can help you calm your mind and keep your cortisol levels in balance

#### Steps to Perform Corpse Pose:

- Lie down on your back, flat. Place both hands, palms facing up, on either side of your body.
- Close your eyes and remain completely motionless. Breathe gently and deeply through your nose as much as possible.
- Concentrate on your breathing and clear your mind. For at least 15 minutes, try to stay in that posture.
- Quick Tips: Perform this yoga asana for PCOS every day for at least 15 minutes.

### 8.6.8 Reclining Butterfly Pose or Supta Baddha Konasana



Reclining Butterfly Pose is a modification of the basic butterfly pose. It is one of the best yoga asanas that emphasize calming the mind, body, and spirit while opening up the pelvic region.

#### Steps to Perform Reclining Butterfly Pose:

- Try to relax by lying down on your back.
- In a butterfly posture, pull your legs close together.
- Hold your feet together with your hands and draw them as close to your torso as possible.
- Hold this posture for 5 minutes and then take a break for 5 minutes. Repeat and relax.
- Quick Tips: To assist maintain your posture during the asana, place a pillow beneath your hip.



### 8.6.9 Child Pose or Balasana



Balasana is an excellent asana for strengthening the hips. This asana joins our list of yogaasanas for PCOD because it helps the body return to its natural position after being stretched and lengthened in the other asanas

### 8.6.10 Utkatasana or Chair pose



#### STEPS TO PERFORM UTKATASANA OR CHAIR POSE

Step 1: Stand straight with your feet slightly apart from each other.

Step 2: Extend your hands in front of you with your palms facing downwards without bending your elbows.

Step 3: Bend your knees and push your pelvis down as if you are sitting on an imaginary chair. Step 4: Move your hand overhead in a way that your fingertips point to the ceilings.

Step 5: Lengthen your spine, look front and try to relax in this position.

Step 6: Pause for a while and inhale and exhale in the position

### 8.7 AYURVEDIK

#### 8.7.1 Shatavari or Asparagus racemosus:



This ayurvedic remedy helps mainly in promoting the normal development of ovarian follicles. It also regulates periods and aids in revitalizing the female reproductive system. Ayurvedic medicine Shatavari also helps in controlling high levels of insulin due to PCOS, due to its phytoestrogen or natural plant-based estrogen levels.

#### 8.7.2 Guduchi:



In ayurvedic treatment for pcod problem, Guduchi is a powerful anti-inflammatory ayurvedic herb. We know that chronic inflammation in body tissues is the root cause of insulin imbalance and ovarian cysts in women. This ayurvedic herb helps in revitalizing body tissues and lowering insulin resistance.

#### 8.7.3 Shatapushpa or fennel:



Fennel seeds are used as a supplement as the phytoestrogens in them bring down inflammation and control insulin resistance.

**8.7.4 Triphala:**

Effective Ayurvedic medicine for pcod problem is Triphala, Which is rich in vitamin C- a powerful natural antioxidant that helps in reducing inflammation by reducing free radicals. Hence this remedy is excellent for cleansing and detoxifying systems and is, therefore, best taken prior to taking any other Ayurvedic medicines to improve outcome.

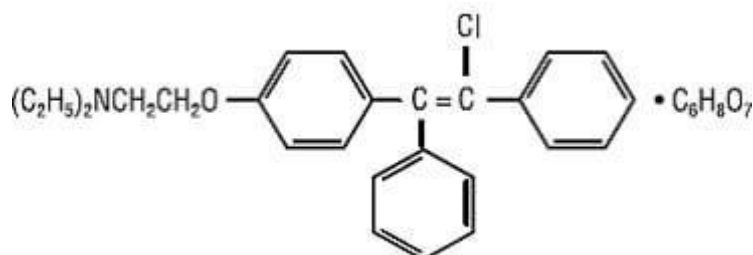
**8.7.5 Aloe Vera- Kumari (Aloe barbadensis):**

- Aloe Vera is yet another Ayurvedic herb that is extremely beneficial in treating PCOS as it helps in regularizing menstrual cycles and promote normal menstruation. It also normalizes hormonal imbalance
- Get advice from top Ayurveda practitioner on polycystic ovarian syndrome ayurvedic treatment, frequency, and dosage of medications based on the symptoms and your medical history.

**8.8 HOMOPATHIC DRUGS****8.8.1 CLOMIFENE**

Also known as clomiphene, is a medication used to treat infertility in women who do not ovulate, including those with polycystic ovary syndrome. Use results in a greater chance of twins. It is taken by mouth once a day, with a course of treatment that usually lasts for 5 days.

- Molar mass: 405.966 g/mol
- CAS ID: 911-45-5
- Other names: Clomiphene; Chloramifene; Chloramiphene;
- MRL-41; MRL/41; NSC-35770
- Metabolism: Liver (with enterohepatic circulation)
- AHFS/Drugs.com: Monograph
- ATC code: G03GB02 (WHO)
- Bioavailability: High (>90%)



Most clomifene metabolism occurs in the liver, where it undergoes enterohepatic recirculation. Clomifene and its metabolites are excreted primarily through feces (42%), and excretion can occur up to 6 weeks after discontinuation.

- Metabolism: Liver (with enterohepatic circulation)
- Excretion: Mainly feces, some in urine
- Other names: Clomiphene; Chloramifene

### 8.8.2 EFLORNITHINE

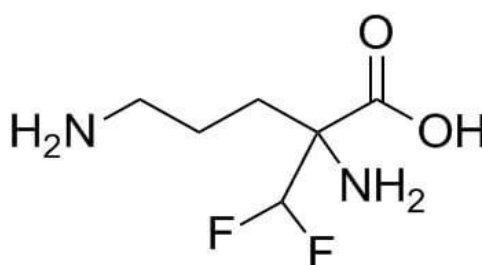
Eflornithine, sold under the brand name Vaniqa among others, is a medication used to treat African trypanosomiasis and excessive hair growth on the face in women. Specifically it is used for the 2nd stage of sleeping sickness caused by *T. b. gambiense* and may be used with nifurtimox.

- Metabolism: Not metabolised
- AHFS/Drugs.com: Monograph
- Other names:  $\alpha$ -difluoromethylornithine or DFMO
- ATC code: D11AX16 (WHO) P01CX03 (WHO)
- Elimination half-life: 8 hours

#### MECHANISM OF ACTION OF DRUGS

Eflornithine is a medication used topically to reduce unwanted facial hair growth in women. The postulated mechanism of action is through irreversible inhibition of ornithine decarboxylase (ODC) in the skin. Eflornithine is a prescription drug indicated in the treatment of facial hirsutism (excessive hair growth).

- Molecular Formula:- C<sub>15</sub>H<sub>25</sub>F<sub>2</sub>N<sub>5</sub>O<sub>5</sub>
- Synonyms:- DFMO & ddC .
- IUPAC:-  $\alpha$ -Difluoromethylornithine & 2',3'-Dideoxycytidine 4-amino-1-[(2R,5S)- 5-(hydroxymethyl)tetrahydrofuran-2-yl]pyrimidin-2-one; 2,5-diamino-2-(difluoromethyl)pentanoic acid
- Molecular Weight:-393.39



H-Cl

### 8.8.3 NORMOZ

Tablet 10's is a combination of four drugs, namely: Chromium picolinate, D-chiro inositol, Myo

...Normoz Tablet 10's is used to prevent and treat polycystic ovarian syndrome (PCOS). It also helps to correct the hormonal imbalance and menstrual cycle to achieve ovulation. Chromium picolinate helps in controlling blood sugar levels and reduces the risk of cardiovascular disease.

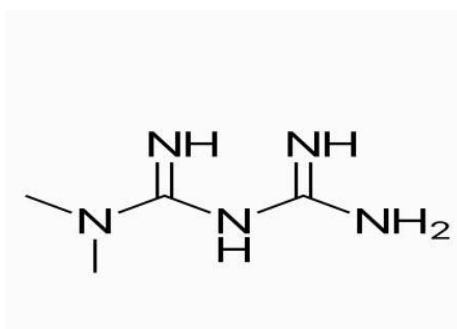
#### MECHANISM OF ACTION OF DRUGS

- Normoz DS tablet works by decreasing serum testosterone and increases insulin sensitivity simultaneously; provides body with folate and increases absorption of phosphorous and calcium from food required for strong bones.

- Normoz DS Tablet is a nutritional supplement rich in essential vitamins. It essentially is useful to treat chromium deficiency and aids in controlling blood sugar in people with diabetes. These tablets are very useful in lowering cholesterol and are used as a weight-loss supplement.

### Glucophage

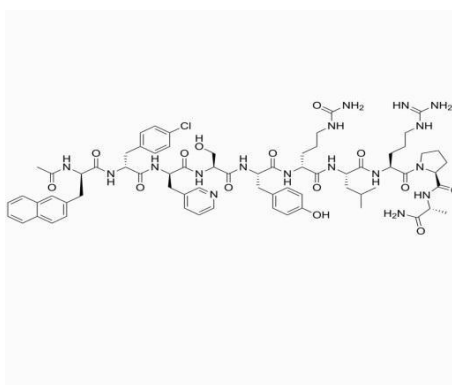
- A relatively new method of treating ovulation problems in women with polycystic ovarian disease is to use an oral medication called metformin (brand name is Glucophage). Metformin has traditionally been used as an oral drug to help control diabetes.
- Commonly prescribed diabetes drug may enhance the effectiveness of fertility of drug and improve the menstrual regularity. It is not approved for people PCOS without diabetes.
- Metformin's same as glucophage the centre of metformin's mechanism of action is the alteration of the energy metabolism of the cell.
- Metformin exerts its prevailing, glucose-lowering effect by inhibiting hepatic gluconeogenesis and opposing the action of glucagon.
- Different Brand Names: Glucophage, Glucophage XR, Fortamet, Glumetza, And Riomet.



- Gonadotropin administration represents a widely accepted therapeutic option to induce ovulation in PCOS patients with anovulatory infertility [9, 10], despite its high direct and indirect costs and its high risk of side effects.
- Injectable hormone comprised of follicle stimulating hormone and LH are commonly used when clomid or femara dose not induce ovulation

### MECHANISM OF ACTION OF DRUGS

- Gonadotropin-releasing hormone (GnRH) is the primary regulator of mammalian reproductive function in both males and females. It acts via G-protein coupled receptors on gonadotropes to stimulate synthesis and secretion of the gonadotropin hormones luteinizing hormone and follicle-stimulating hormone



- The two principal gonadotropins in vertebrates are luteinizing hormone (LH) and follicle-stimulating hormone (FSH), although primates produce a third gonadotropin called chorionic gonadotropin (CG). LH and FSH are heterodimers consisting of two peptide chains, an alpha chain and a beta chain
- Also called GnRH, LH-RH, LHRH, and luteinizing hormone-releasing hormone.

## 8. CONCLUSION

- The present review mainly focused on "A STUDY ON PREVALENCE AND KNOWLEDGE OF POLYCYSTIC OVARY DISEASE AMONG PROBLEMS AND SOLUTION".
- Also the review spotlights the Introduction, Identification : Irregular menstruation, infertility, unwanted facial hair growth, pimples (Adolescence), weight gain, hair loss on the scalp and many other symptoms are found in PCOD.
- Insulin resistance also appears to increase the risk of glucose intolerance, type 2 diabetes, and lipid abnormalities.
- Treatment of this disorder should focus on reduction of androgen associated symptoms, the protection of the endometrium, and reduction of the long-term risks of diabetes and cardiovascular complication.
- For many women with this syndrome, improving infertility is a primary goal of therapy Nurse-mid wives can assess and manage many of the presenting complaints and lifestyle issues, such as Menstrual disorders
- The signs and symptoms of PCOD are increasing but females were not aware of PCOD although its signs and symptoms were present in many of them
- So different education programs should be done to provide knowledge about such diseases to females
- Furthermore, study indicates that majority of females don't consult gynaecologist unless there is severe or life-threatening problem or disease.
- So, females should consult gynaecologist at least once in a year for their better healthstatus.

## 9. RESULT

PCOS can cause Missed or irregular menstrual periods, excess hair growth, acne, infertility, and weight gain. Women with PCOS may be at higher risk for type 2 diabetes, high blood pressure, heart problems, and endometrial cancer.

### COMMON SYMPTOMS OF PCOS

PCOS is very common in recent days and affects many women. While these symptoms can be treated, some women do not even face any of the symptoms, thus it may go undiagnosed. The symptoms of PCOS can get worse if one is overweight or obese. Here are some symptoms of PCOS that you can notice:

- Irregular periods or no periods at all
- Excessive pain during periods accompanied with heavy flow
- Excess male hormones or androgen that can cause hirsutism i.e. growth of hair on the face, back, chest or buttock
- Oily skin and breakouts like acne
- Thinning of hair or hair loss resulting in male pattern baldness
- Excessive weight gain
- Difficulty in conceiving
- Pain in the pelvic area
- Anxiety and depression

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