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Nutrition

A Lifestyle Approach for Polycystic Ovary Syndrome (PCOS)

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Integrative
& Personalised
Medicine 24

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About me

- Board-Certified Lifestyle Medicine Professional (IBLM diploma)
- Qualified Nutritionist with an MSc in Nutrition and Food Sciences (distinction)
- Co-author of *Living PCOS Free: How to Regain Your Hormonal Health with Polycystic Ovary Syndrome*
- Run my own practice – 1-1 Nutrition & Lifestyle Med consults





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Learning objective

- Understand the role of nutrition and lifestyle medicine in **Polycystic Ovary Syndrome (PCOS)**





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The PCOS Problem

- Polycystic Ovary Syndrome (PCOS) is the most common endocrine disorder worldwide, affecting at least **1 in 10** women and girls
- High incidence in subgroups e.g. people living with excess weight, infertility etc.
- 3 in 4 **remain undiagnosed** – difficult to join the dots
- Complex genetic trait and is thought to **develop in utero**
- **UK Biobank study of >175,000 men** shows PCOS not linked to ovaries as men can develop PCOS characteristics too
- Economic meta-analysis in 2020 showed that PCOS costs an estimated **\$8 billion** to diagnose and treat in the USA



Diagnosing PCOS

DIAGNOSIS



Algorithm 1: Diagnostic algorithm for polycystic ovary syndrome (PCOS)

Step 1: Irregular cycles + clinical hyperandrogenism

(exclude other causes)* = diagnosis

Step 2: If no clinical hyperandrogenism

Test for biochemical hyperandrogenism (exclude other causes)* = diagnosis

Step 3: If **ONLY** irregular cycles **OR** hyperandrogenism

Adolescents ultrasound is not indicated = consider at risk of PCOS and reassess later
Adults - **request ultrasound for PCOM***, if positive (exclude other causes)* = diagnosis

* Exclusion of other causes = TSH, prolactin, 17-OH progesterone, FSH or if clinically indicated exclude other causes (e.g. Cushing's Syndrome, adrenal tumours). For hypogonadotropic hypogonadism, usually due to low body fat or intensive exercise, exclude clinically and with LH/ FSH.
PCOM = polycystic ovarian morphology on ultrasound



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Symptoms of PCOS

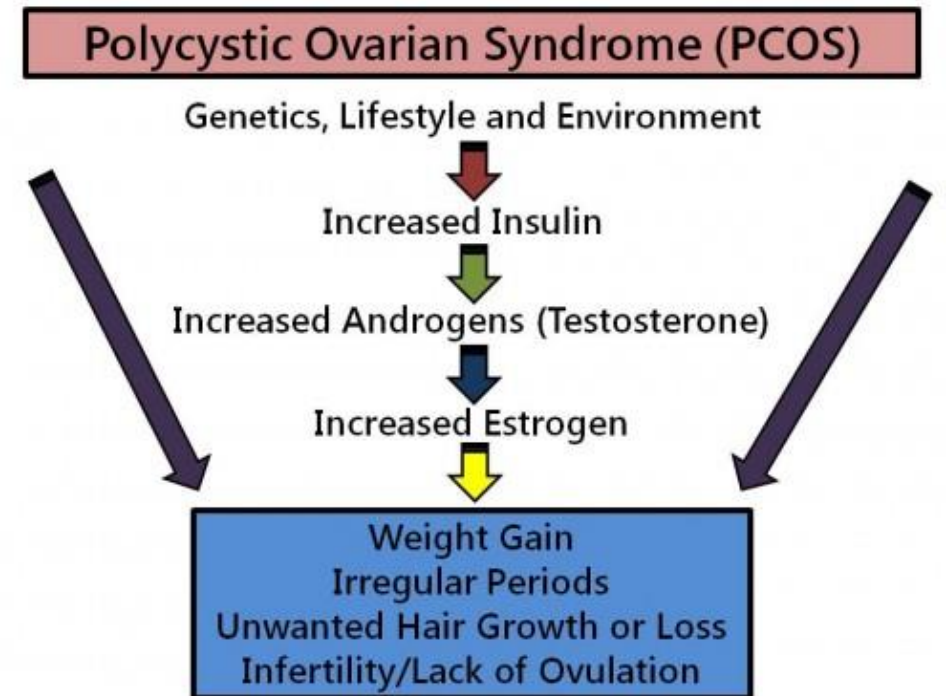
- Irregular/ absent periods
- Excess facial/ body hair (hyperandrogenism)
- Acne, especially around the jawline
- Scalp hair loss
- Excess weight
- Insulin resistance/ prediabetes
- Fertility problems (15-fold increase in fertility issues)
- Psychological issues e.g. anxiety, depression, OCD, suicidal thoughts
- Eating disorders (especially binge-eating disorder)
- Sexual and relationship dysfunction
- Sleep disturbances e.g. sleep apnoea





Possible drivers of PCOS

- IR is the main driver in 50%-70% of cases
- **Insulin stimulates the ovaries (\uparrow IGF-1)** to produce excess androgens
- **Excess weight** trigger: >60-80% living with clinical obesity/overweight
- Unclear relation between PCOS and excess weight
- **1/3 of lean PCOS** (BMI; ≤ 25 kg/m²) have increased intra-abdominal fat on MRIs



Lifestyle management

1st line of treatment to manage and treat PCOS and its long-term effects as recommended by expert groups and international guidelines:

Increased risk of:

- Type 2 diabetes (>50% with excess weight develop T2DM by age 40)
- Metabolic syndrome
- Gestational (pregnancy) diabetes: x2 higher risk
- Endometrial cancer
- Sleep apnoea
- Fatty Liver (NAFLD)
- Cardiovascular risk: More studies needed
- Higher CVD risk markers
 - Abnormal lipid profile
 - Raised triglycerides
 - Raised LDL
 - Raised blood pressure





Weight – a sensitive issue

- Modest weight loss (5 to 10% of body weight) may result in **restoration of normal ovulatory cycles** and **improved pregnancy rates** in short-term studies (Crosignani et al 2003)
- **Weight loss results in ↓ androgens, improves metabolic risk factors** > 1/3 of women may achieve full recovery (Pasquali et al, 2011)
- **Lifestyle intervention** improves body composition, hyperandrogenism and insulin resistance (Moran et al, 2011)
- Recommending weight loss as the **only** goal may cause harm given that women with PCOS are at increased risk of **eating disorders**



Benefits of plant-predominant nutrition for PCOS

A fibre-rich diet in women with PCOS, with or without weight loss intentions makes sense:

Reduces IR

Helps sustain weight loss and maintenance

Lowers inflammatory markers (C-reactive protein, homocysteine)

Reduces oxidative stress and improves immunity

Reduces circulating androgens, increases sex hormone binding globulin (SHBG)

Improves lipid profile

Improves gut dysbiosis by targeting the gut microbiome

Naturally lower in advanced glycation end products (AGEs)



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Focus on colour

10-13 portions of fruit and veg daily
A portion is 80 g (handful)
BUT meet patient where they are at!
Build gradually



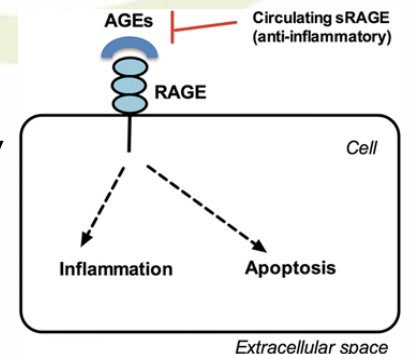
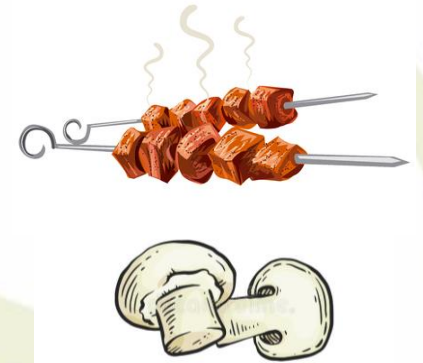


AGEs and PCOS – advanced glycation end products

- Glycotoxins or AGEs accelerate **aging process**
- Cross link proteins cause **oxidative stress, insulin resistance, cell damage**
- **High-AGE foods** include beef, pork, poultry, cheese and processed foods
- **Low-AGE foods** include whole grains, legumes, vegetables, and fruits

- In PCOS, women may have twice the circulating AGE levels (RAGE on ovaries) and high levels also found in lean PCOS
- Modifications of **dietary AGEs** intake resulted in improvement in metabolic, hormonal and oxidative stress biomarkers in women with PCOS (Tantalaki et al, 2014)

- Stop **smoking**: glycotoxins in cigarette smoke
- ↓ intake of **high AGE animal foods** e.g. barbecued foods, red meat, poultry
- **X ultra processed foods**, breakfast cereals and fried foods
- ↑ foods that help pull AGEs out of the body e.g. **brown rice/mushrooms**

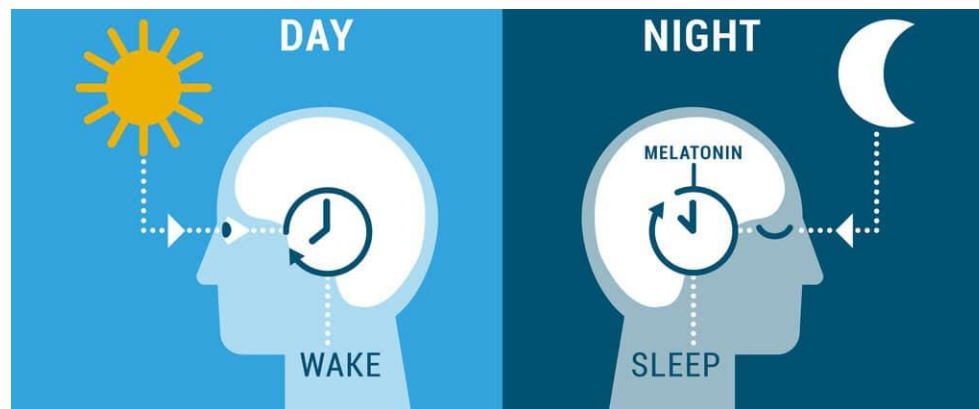




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Eat in line with circadian rhythms

- Higher level of **circadian rhythm disruption** in PCOS, shift workers e.g. nurses etc.
- Aim to get morning **natural light exposure** – a 15-minute walk or breakfast outdoors
- **Eating two larger meals a day (breakfast and lunch)** is more beneficial to optimise **insulin sensitivity** than 6 smaller meals throughout the day (Kahleova et al., 2014)
- *“Breakfast like a queen, lunch like a princess and dinner like a pauperess”*
- Aim to eat a **light meal** by 7pm. This also supports restorative sleep.





Supplements to consider

- **Vitamin D3:** may improve reproductive function and insulin sensitivity (Thomson et al, 2013). Check levels (1000-2000 IU/largest meal of day)
- **Inositol (Ip6).** Found in whole grains, fruit, beans, nuts etc.). In trials, inositol has been shown to improve insulin action, decrease androgen levels, and improve ovulatory function in PCOS (in both lean and higher weight)
- **Algae-derived omega-3 fats DHA/EPA** improves insulin resistance, lowers LDL cholesterol (meta-analysis by Yang et al,2018)
- **Spearmint tea x 2 cups daily** for unwanted hair growth (Grant, 2010).
- **Magnesium** (Cutler, 2019), **Zinc** (Nasiadek, M et al., 2020) can be considered
- **Evidence against calcium supplements, fish oils**
- **Prenatal** –include 400 mcg folic acid (higher dose in BMI >30 kg/m²)
- If on COCP, take **multivitamin multimineral supplement**





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All six pillars are key in managing hormonal health

- **Nutrition:** prioritise whole plant foods – intact whole grains e.g. barley/ brown rice, fruit, vegetables, legumes, nuts, seeds, herbs & spices with water as the drink of choice
- **Physical activity:** **Aerobic exercise** and **resistance training** to improve insulin sensitivity and body composition (Aim for 250 min/week moderate intensity per week)
- **Sleep:** Prioritise regular sleep routine with 7-9 hours of restorative sleep
- **Stress management:** Identify stress triggers and try meditation, mindfulness, breathwork, psychotherapy or yoga to lower cortisol levels
- **Avoid risky substances** such as tobacco & avoid/minimise alcohol
- **Positive social connections:** Prioritise time with your support network
- e.g. family, friends, PCOS groups, community clubs





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My PCOS Story





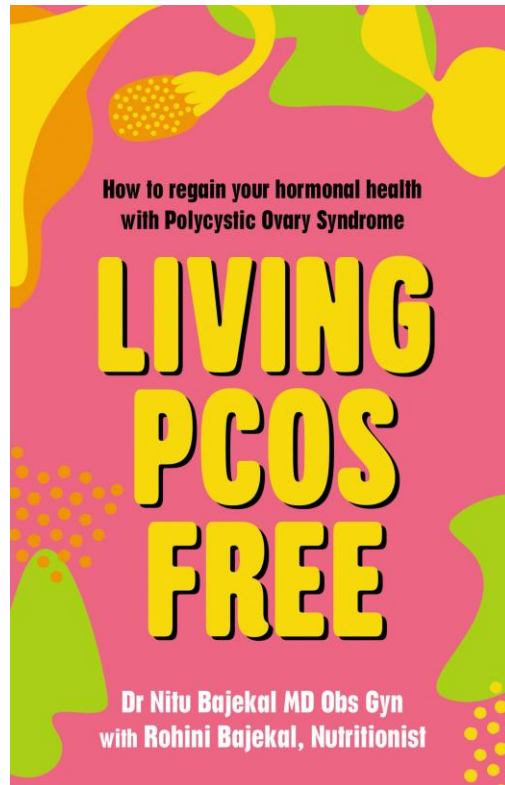
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*“If you listen to your body when it whispers you
won’t have to hear it scream”*



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Living PCOS Free: How to Regain Your Hormonal Health with Polycystic Ovary Syndrome



A practical approach to managing PCOS using proven lifestyle approaches alongside western medicine

- Co-authored with Dr Nitu Bajekal, Senior Consultant ObGyn, 35+ years' experience
- Real-life patient case studies
- Myth-busters – from soya to seed-cycling
- 21-day plan with 30+ plant-based recipes
- B&W illustrations
- Hundreds of scientific references
- Medical glossary

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Any questions?



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1-1 Nutrition & Lifestyle Med Consultations

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