



HEALTHCARE
EVOLUTION

Managing your Weight with Polycystic Ovarian Syndrome (PCOS)



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*EMPOWERING AS MANY PEOPLE AS POSSIBLE TO LIVE
A HAPPIER AND HEALTHIER LIFE!*

PRESENTER DISCLOSURES

I have the following relationships with these commercial interests:

- Founder: Healthcare Evolution Inc.
- Clinical Director: Muse Aesthetics Inc. - Calgary, AB
- Consulting/Contracting Fees: Novo Nordisk – Obesity C.A.R.E Service; SRx Pharmacy – Calgary, AB
- Grant Funding: Canadian Foundation for Pharmacy – Innovation Fund Grant
- Advisory Board: CPhA Board Representative on the Pharmacy Examination Board of Canada (PEBC) Board of Directors
- Committee: Co-President for Obesity Canada Calgary Chapter

I have received no speaker's fee or support for this learning activity.



LEARNING OBJECTIVES

- 1) Explore what is PCOS?
- 2) Discuss complications and concerns with PCOS
- 3) Review the evidence around lifestyle interventions for PCOS



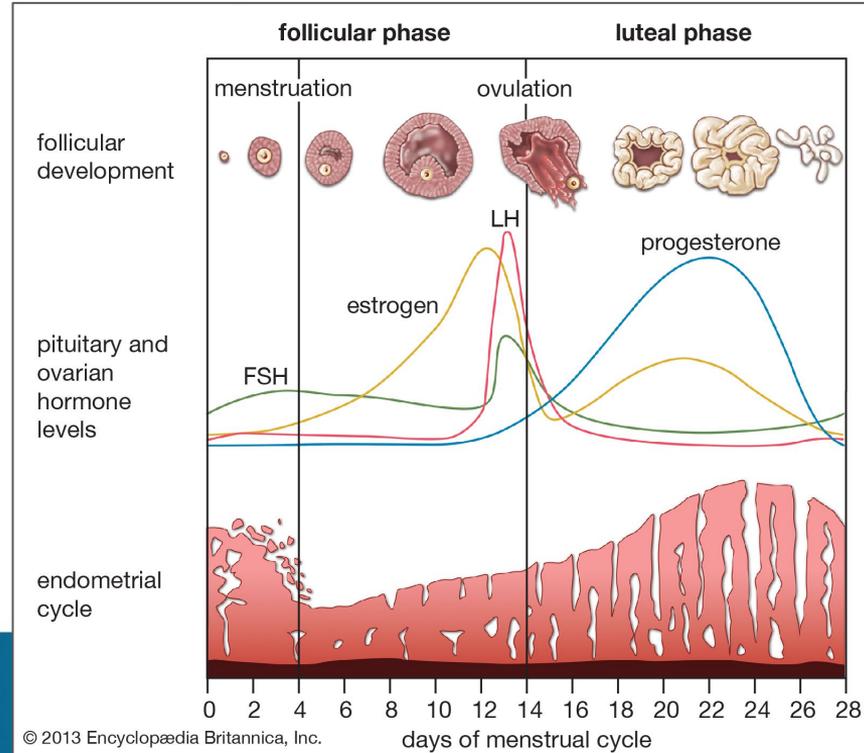
WHAT IS PCOS?

- PCOS = Polycystic Ovarian Syndrome
- Hormonal disorder that women can develop during their reproductive years
 - Actually most common endocrine disorder in women of reproductive age
 - Affects 6-21%?
- Hormones potentially involved:
 - Androgens or sometimes referred to as male hormones (testosterone)
 - Insulin
 - Progesterone

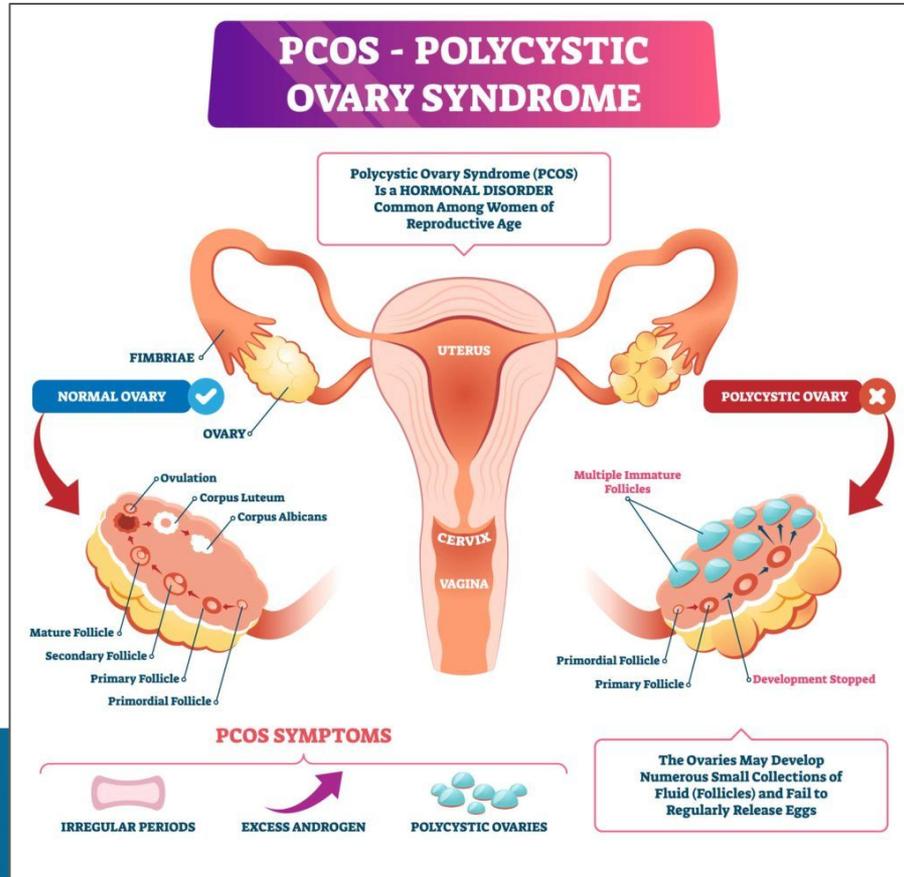


WHAT IS PCOS?

- Normal Menstrual Cycle

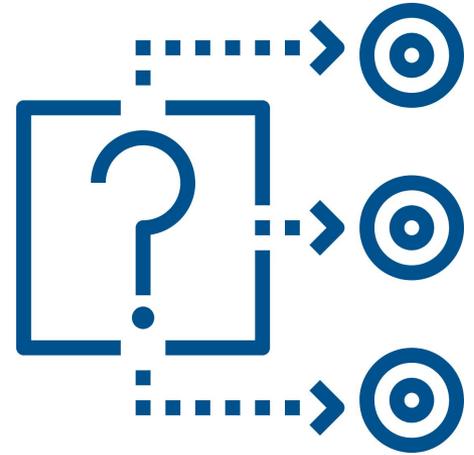


WHAT IS PCOS?



CAUSE OF PCOS?

- Not really clear...
 - Genetic Component? Environmental?
 - Insulin resistance > more insulin (hyperinsulinemia) > excess ovarian androgen production
 - Low grade inflammation - leads to polycystic ovaries then androgen production



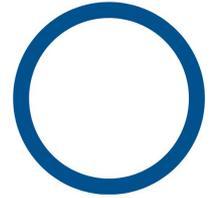
PCOS - DIAGNOSIS OF EXCLUSION?

- Rule out other potential causes of symptoms
 - i.e. Thyroid issues; Increases in Prolactin
- Suspect condition if a woman has at least 2 of the following:
 - Androgen excess (via labs or excess terminal hair growth)
 - Ovulatory dysfunction
 - Polycystic ovaries



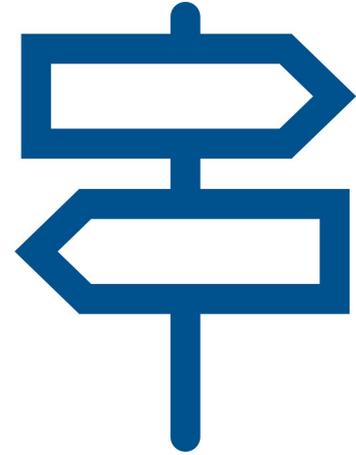
CHALLENGE WITH PCOS?

- Signs and symptoms will vary between women - multiple phenotypes
 - Type A - Excess androgens, ovulatory dysfunction, cysts on ovaries
 - Type B - Excess androgens, ovulatory dysfunction
 - Type C - Excess androgens, cysts on ovaries
 - Type D - Ovulatory dysfunction, cysts on ovaries
- Not every female will have cysts on ovaries - misnamed?
- Symptoms and complications will vary from none to mild to severe
- Treatment isn't necessarily straight-forward



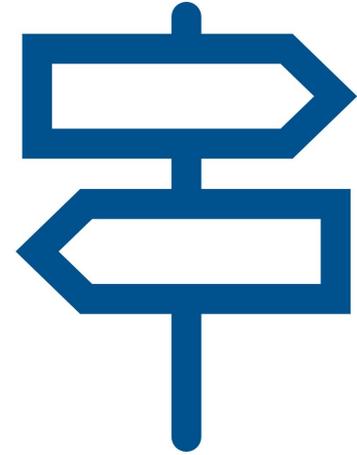
COMMON SIGNS AND SYMPTOMS

- Excess Androgens (Male Hormones)
 - Elevated androgens
 - Hirsutism
 - Excessive growth of dark, coarse hair in male like pattern
 - Acne
 - Male-pattern hair loss
 - Rare side effects: increased muscle mass, deepening of voice, enlarged clitoris



COMMON SIGNS AND SYMPTOMS

- Ovulatory dysfunction
 - Abnormal menses
 - Infertility
- Polycystic ovaries
- Obesity
- Insulin resistance/diabetes
- High cholesterol



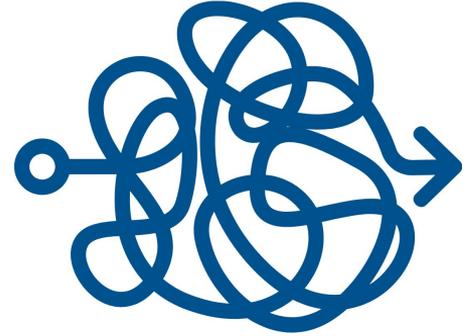
COMPLICATIONS OF PCOS?

Cardiometabolic Complications:

- High blood pressure
- High cholesterol
- Insulin resistance
- Diabetes
- Obesity

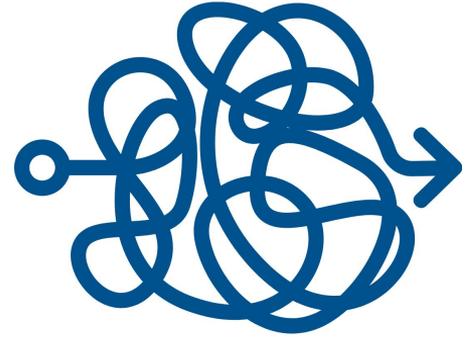
Psychological Complications:

- Increase risk of stress (infertility, irregular menses)
- Depression
- Low self-esteem
- Poor body image
- Reduced health-related quality of life



WHY DOES WEIGHT GAIN OCCUR?

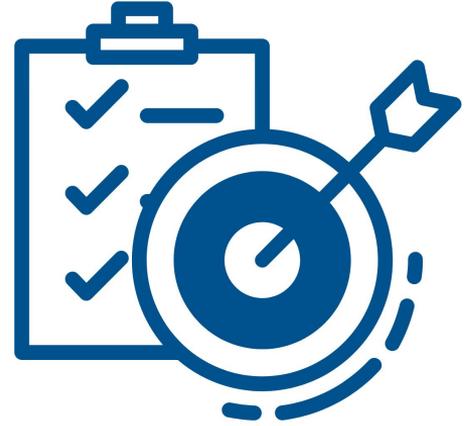
- Obesity is a common complication - upwards of 50% to as high as 90% of women
- No clear answer
 - PCOS a direct cause?
 - Or, makes it easier to gain weight
 - Androgens - leads to weight gain around the abdomen area (male pattern)
 - Insulin resistance
 - Increased appetite and insulin
 - Hormonal fluctuations, stress, mood changes
 - Challenging to plan, organize and be mindful



DIAGNOSED WITH PCOS, WHAT DO WE DO?

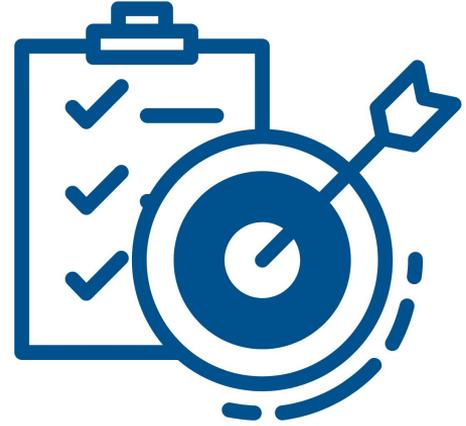
Goals of Therapy:

- Management as there is no 'cure' - exception weight-loss?
- Regulating menses
- Manage infertility
- Dealing with features of excess androgens
- Managing complications



TREATMENT?

- Individualized and based on patient goals:
 - Pregnancy?
- 1) Hormonal Contraceptives (Birth control)
 - a) Regulate menses, reduce acne and hair growth/loss
- 2) Spironolactone
 - a) Anti-androgen effects - reduces hair growth
- 3) **Metformin?!**
- 4) **Lifestyle modification and weight-loss?**



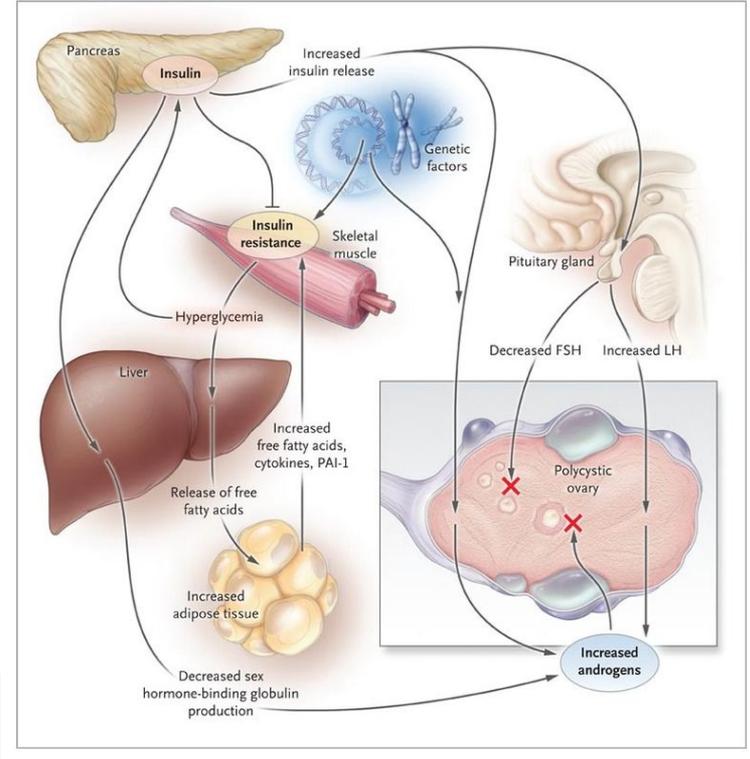
TREATMENT - METFORMIN

Metformin

- Anti-diabetes drug?

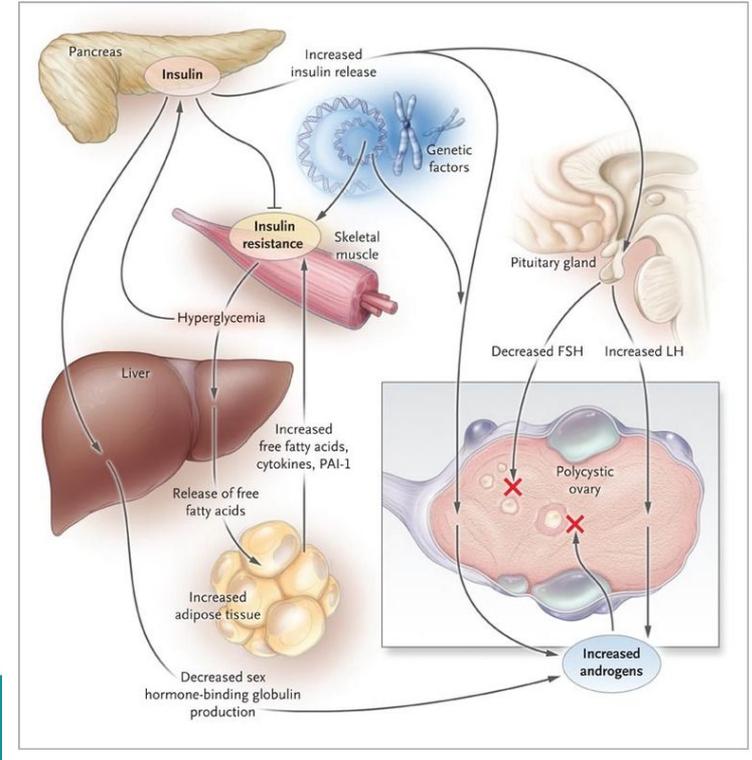
How does it work?

- Increases GLP-1
- Reduces liver sugar production
- Reduces insulin resistance
 - Decreases insulin production
- Can reduce appetite and sugar uptake from GI tract



TREATMENT - METFORMIN

- Hyperinsulinemia may lead to androgen production
 - Infertility
 - Hirsutism
- Metformin reduces insulin resistance therefore insulin
 - Less insulin = less androgens
 - Reduces testosterone in women with PCOS ~20-25%



TREATMENT - METFORMIN

- Evidence:
 - May improve ovulatory function and menses
 - Increased pregnancies but not live birth rates?
 - Improves insulin resistance, blood sugar levels and diabetes



TREATMENT - LIFESTYLE

- First-line of treatment across the board for all symptoms

American Society of Reproductive Medicine:

Healthy behaviours, including healthy eating and regular physical activity, are recommended to achieve and/or maintain a healthy weight and optimize general health, hormonal outcomes, and quality across the lifespan.



TREATMENT - LIFESTYLE

Questions?!

- 1) Is it weight-loss or health behaviours that lead to improvement in PCOS symptoms?
- 2) Is weight-loss curative?



WHAT WE KNOW

- Obesity can worsen all clinical features of PCOS
- Obesity may also worsen risks associated with PCOS such as insulin resistance, heart disease, and high cholesterol levels

So is weight-loss the key?



WHAT DOES THE SCIENCE SAY?



Cochrane
Library

Cochrane Database of Systematic Reviews

Lifestyle changes in women with polycystic ovary syndrome (Review)

Lim SS, Hutchison SK, Van Ryswyk E, Norman RJ, Teede HJ, Moran LJ



WHAT DOES THE SCIENCE SAY?

- Data is not great
 - Limited trials
 - Poor methods and reporting
 - Inconsistent results

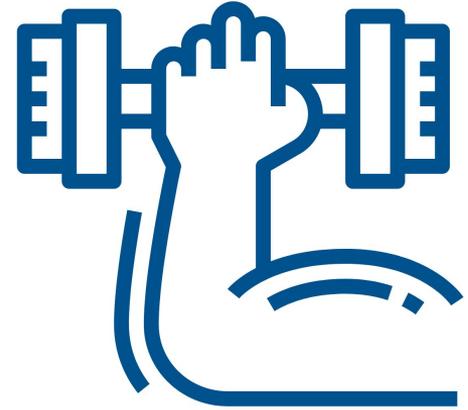


WHAT DOES THE SCIENCE SAY?

Interventions reviewed:

1. Physical activity

- Supervised and non-supervised
- Aerobic and resistance training
- Moderate intensity to HIT
- 3-4 sessions per week



WHAT DOES THE SCIENCE SAY?

Interventions reviewed:

2. Dietary and Other

- Meal replacement diet (Optifast)
- Individualized calorie deficit in conjunction with a dietitian
- Group session reviewing dietary patterns
- Individual and group sessions on diet, activity, and behaviours
- Audio CD on Stress/Mindfulness management



WHAT DOES THE SCIENCE SAY?

Findings:

- No studies examined live birth, miscarriage or pregnancy
- No studies examined menstrual regularity or ovulation
- May improve Free Androgen Index (FAI)
- May reduce weight and BMI
- Possible benefit in Quality of Life Scores?



WHAT DOES THE SCIENCE SAY?

Free Androgen Index:

- Ratio used to determine abnormal androgen status
 - In PCOS, this is elevated
- Reducing it is good - may mean improvements in fertility and reproductive outcomes



WHAT DOES THE SCIENCE SAY?

Kite *et al. Systematic Reviews* (2019) 8:51
<https://doi.org/10.1186/s13643-019-0962-3>

Systematic Reviews

RESEARCH

Open Access



Exercise, or exercise and diet for the management of polycystic ovary syndrome: a systematic review and meta-analysis

Chris Kite^{5,7} , Ian M. Lahart⁶ , Islam Afzal¹ , David R. Broom⁸ , Harpal Randeva^{1,2,3,4} , Ioannis Kyrou^{1,2,3,4}  and James E. Brown^{1,5*}

ACTIVITY...

- Not effective for weight-loss
 - Key for weight-maintenance
- Insulin resistance?
 - In individuals without PCOS, we know it is effective
- Aerobic and Resistance exercise beneficial
- Quality of life measures showed improvement



WHAT DOES THE SCIENCE SAY?

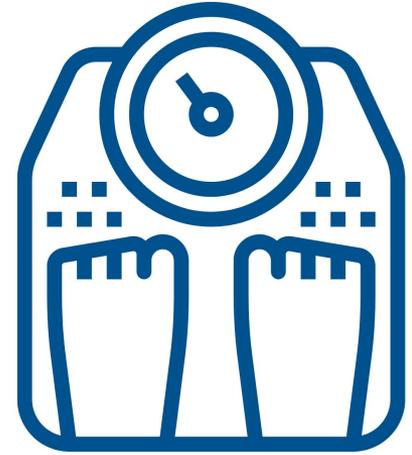
Translation and implementation of the Australian-led PCOS guideline

Translation and implementation of the Australian-led PCOS guideline: clinical summary and translation resources from the International Evidence-based Guideline for the Assessment and Management of Polycystic Ovary Syndrome

Helena J Teede^{1,2}, Marie L Misso^{1,2}, Jacqueline A Boyle^{1,2}, Rhonda M Garad^{1,2}, Veryan McAllister^{1,3}, Linda Downes^{1,2}, Melanie Gibson-Helm^{1,2}, Roger J Hart^{1,4}, Luk Rombauts⁵, Lisa Moran^{1,2}, Anuja Dokras⁶, Joop Laven⁷, Terhi Piltonen⁸, Raymond J Rodgers^{1,9}, Mala Thondan¹⁰, Michael F Costello^{1,11}, Robert J Norman^{1,9}, on behalf of the International PCOS Network

WEIGHT-LOSS...

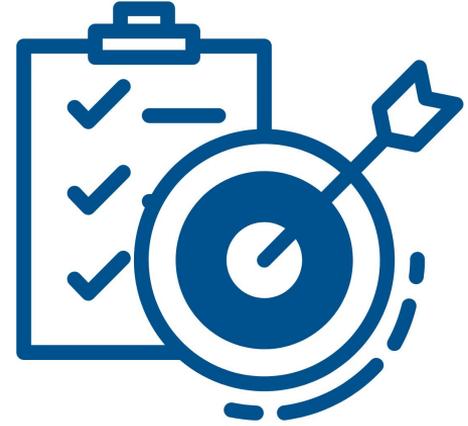
- Modest weight-loss of 5-10% from baseline
 - Improve PCOS features and pregnancy outcomes
 - No best diet - Calorie restriction is the key



WEIGHT-LOSS...

Recommendations:

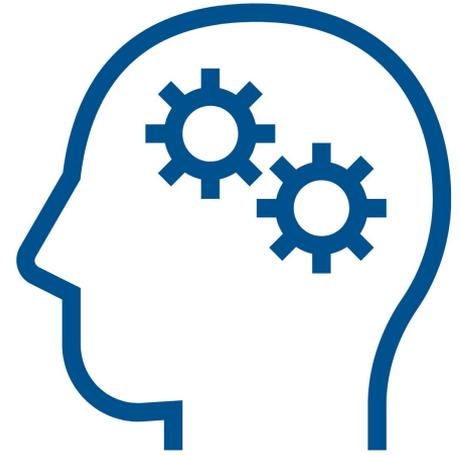
- Exercise primarily for weight maintenance
- Behavioural strategies
 - Goal setting, self-monitoring, stimulus control, problem solving, assertiveness, slower/mindful eating, relapse prevention



MY THOUGHTS

Is it weight-loss or health behaviours that lead to improvement in PCOS symptoms?

- Likely a combination of both
- Similar to populations without PCOS healthy behaviours will always lead to improved health outcomes
- Weight-loss may provide additional benefits for individuals with PCOS



MY THOUGHTS

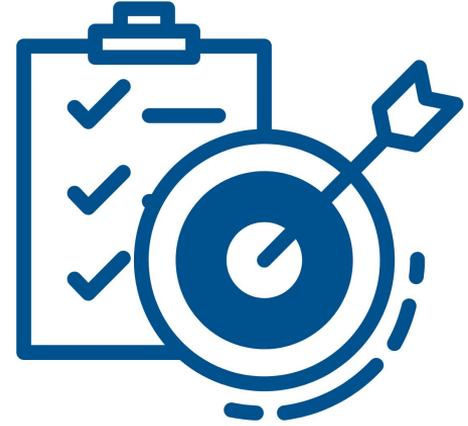
Is weight-loss curative?

- In my opinion there is no cure for PCOS
 - Weight gained back symptoms return?
- Help manage symptoms - Yes
 - Some women more so than others
 - Weight-loss may reduce insulin resistance therefore androgens
 - Anecdotally weight-loss can be a game changer
 - Safer for those that are trying to conceive



MANAGING YOUR WEIGHT?

- Work with care team to manage other PCOS symptoms - that may mean medications
- Keep it simple
 - Boring basics
- Focus on small changes you can **SUSTAIN**



MANAGING YOUR WEIGHT?

- Dietary:
 - Protein
 - Fiber
 - Eating consistently
 - Eating enough calories
 - Eat more slowly



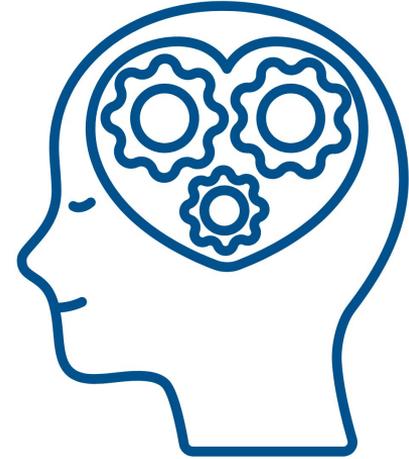
MANAGING YOUR WEIGHT?

- Exercise
 - Some is good. More is better. Everything counts.
 - Aerobic (Cardio) + Resistance training
 - Just 30 mins/day
 - Activity itself is not enjoyable it is the benefits we have afterwards



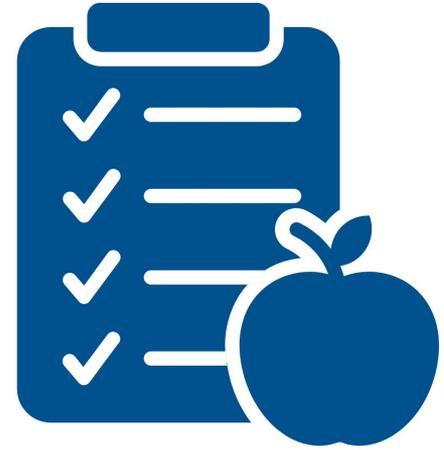
MANAGING YOUR WEIGHT?

- Mental/Emotional Health
 - Stress management
 - Mindfulness
 - Supports - family, friends, care team
 - Positive reinforcement



CONCLUSIONS

- PCOS is a complex multifactorial condition and the symptoms/severity each woman experiences will be different
- Weight-gain occurs more easily but weight-loss is possible
- Managing your health isn't a short term process it is something we need to focus on for life
- Collect the data, analyze, find patterns, make changes, AND repeat..



REFERENCES

- 1) Lim, S. S. *et al.* Lifestyle changes in women with polycystic ovary syndrome. *Cochrane Database of Systematic Reviews* vol. 2019 (2019).
- 2) Kite, C. *et al.* Exercise, or exercise and diet for the management of polycystic ovary syndrome: A systematic review and meta-analysis. *Systematic Reviews* vol. 8 1–28 (2019).
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- 6) Jiskoot, G. *et al.* Weight Reduction Through a Cognitive Behavioral Therapy Lifestyle Intervention in PCOS: The Primary Outcome of a Randomized Controlled Trial. *Obesity* **28**, 2134–2141 (2020).





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Let's connect!

Where to find me:



Channel: Dr. Dan - Weight-loss via Habit Mastery



Page: Dr. Dan - Healthcare Evolution (@theofficialdrdan)

Group: HE Family with Dr. Dan



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Website: www.healthcareevolve.ca



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THANK YOU!
ANY QUESTIONS?



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