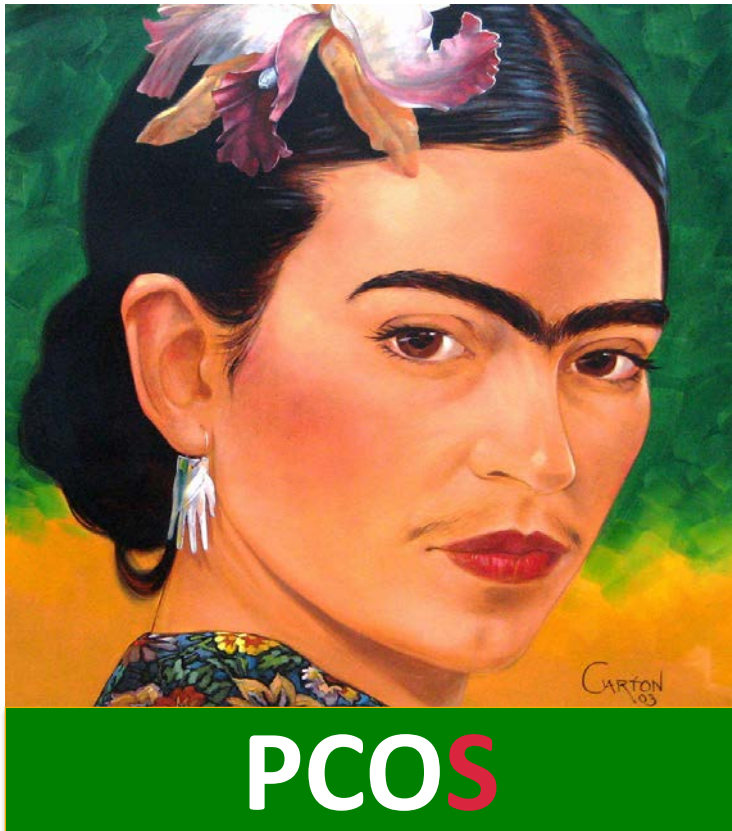
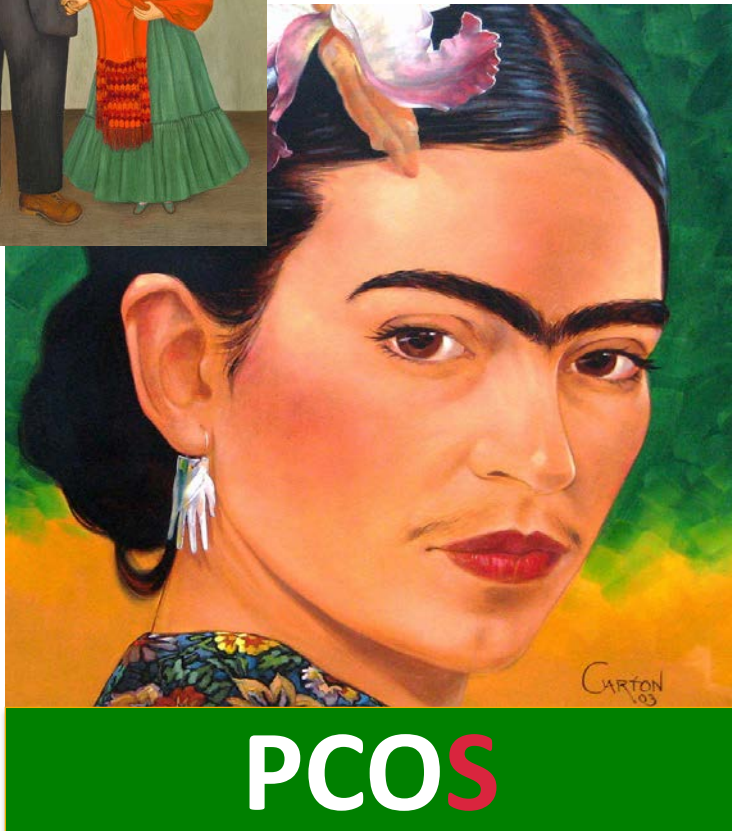


KAKO NADZOROVATI MOŠKE HORMONE V JAJČNIKU?

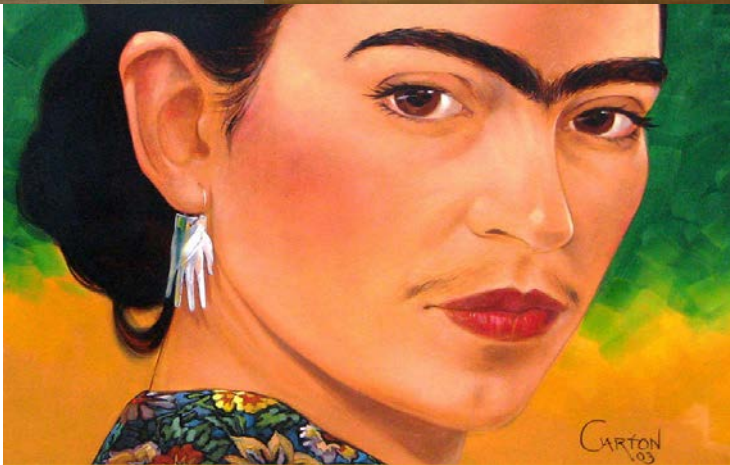


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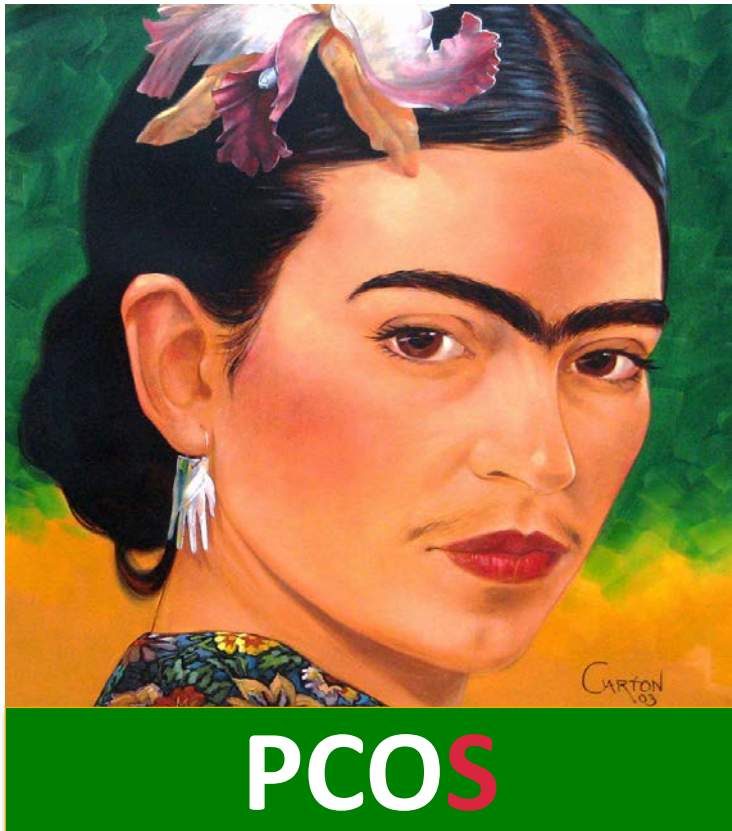
PCOS

KAKO NADZOROVATI MOŠKE HORMONE V JAJČNIKU?



PCOS

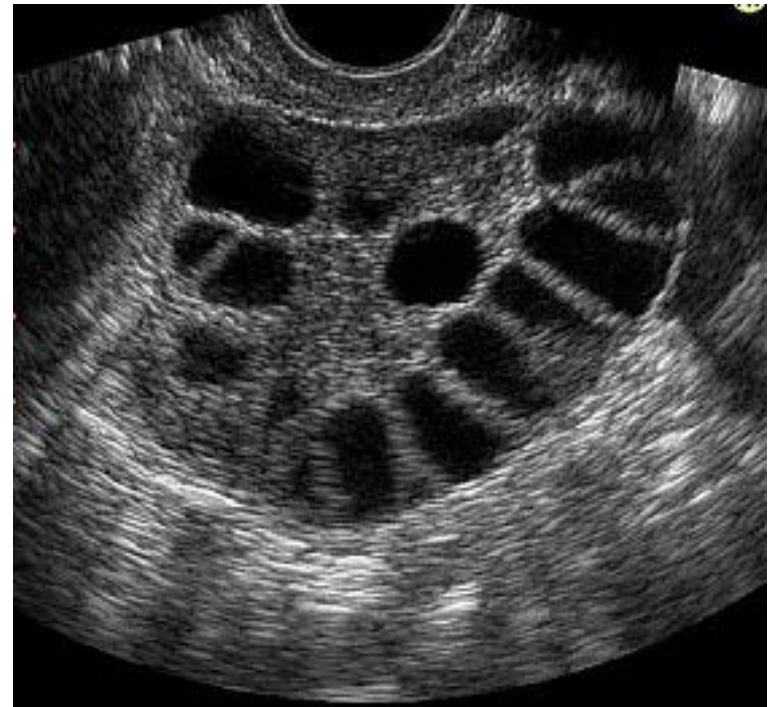
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KAKO NADZOROVATI MOŠKE HORMONE V JAJČNIKU?



PCOS

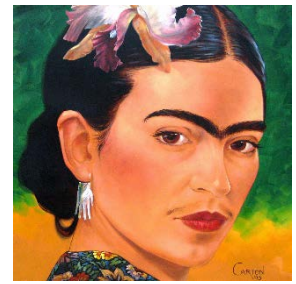


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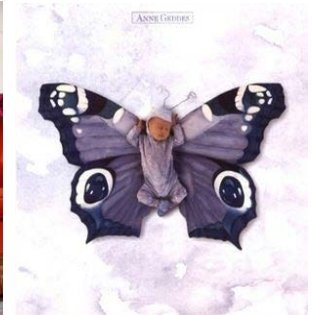
Obrazi PCOS



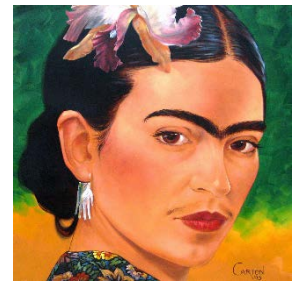
Obrazi PCOS



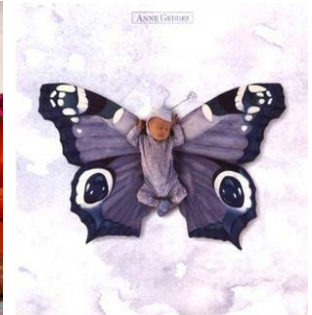
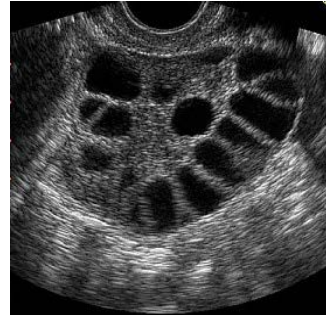
PCO
Motnje menstrualnega ciklusa
Neplodnost



Obrazi PCOS



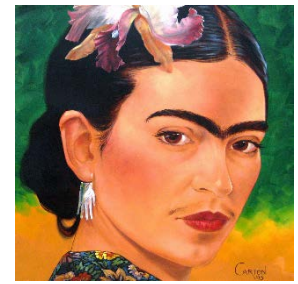
PCO
Motnje menstrualnega ciklusa
Neploidnost



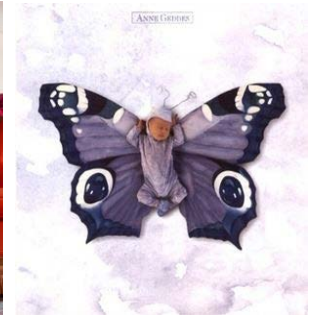
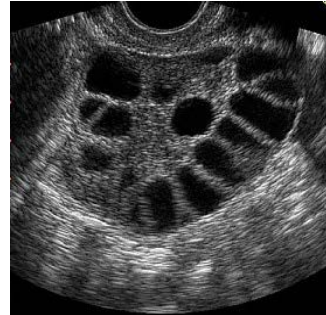
Aknavost, poraščenost,
Izpadanje las



Obrazi PCOS



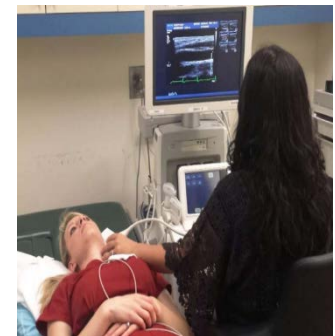
PCO
Motnje menstrualnega ciklusa
Neplodnost



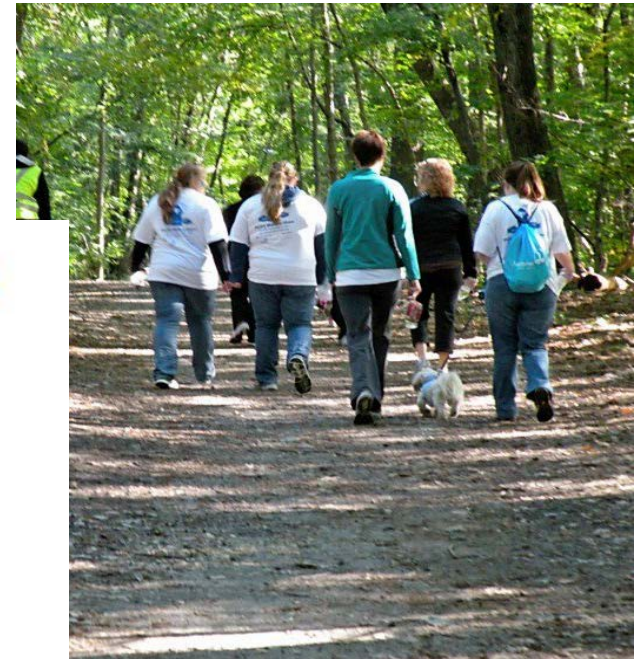
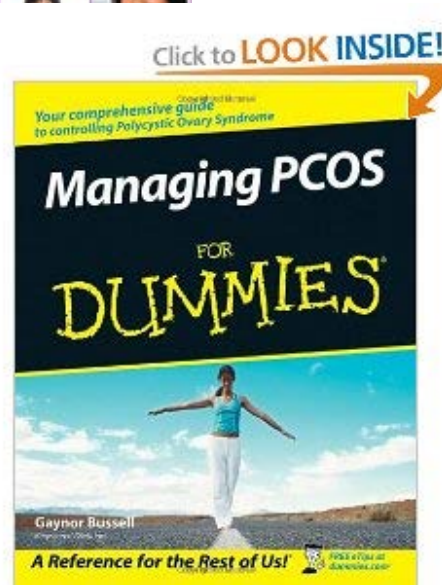
Aknavost, poraščenost,
Izpadanje las



Presnovni zapleti



Pojavnost PCOS

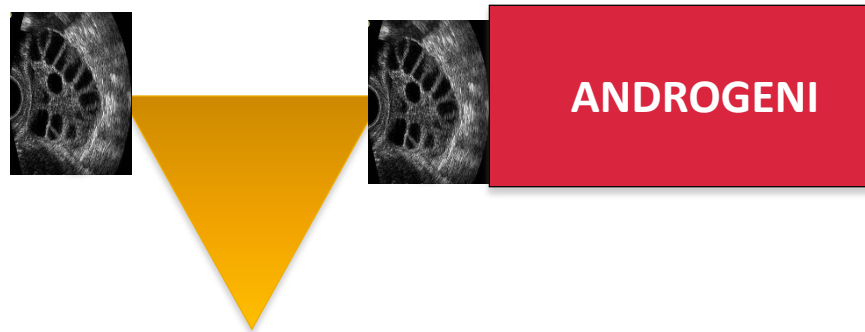


Najpogostejša hormonska motnja pri ženskah v rodnem obdobju!

Goodazi Fertil Steril 2005, Azziz JCEM 2004, Ehrman NJEM 2005

Prijemališča zdravljenja PCOS

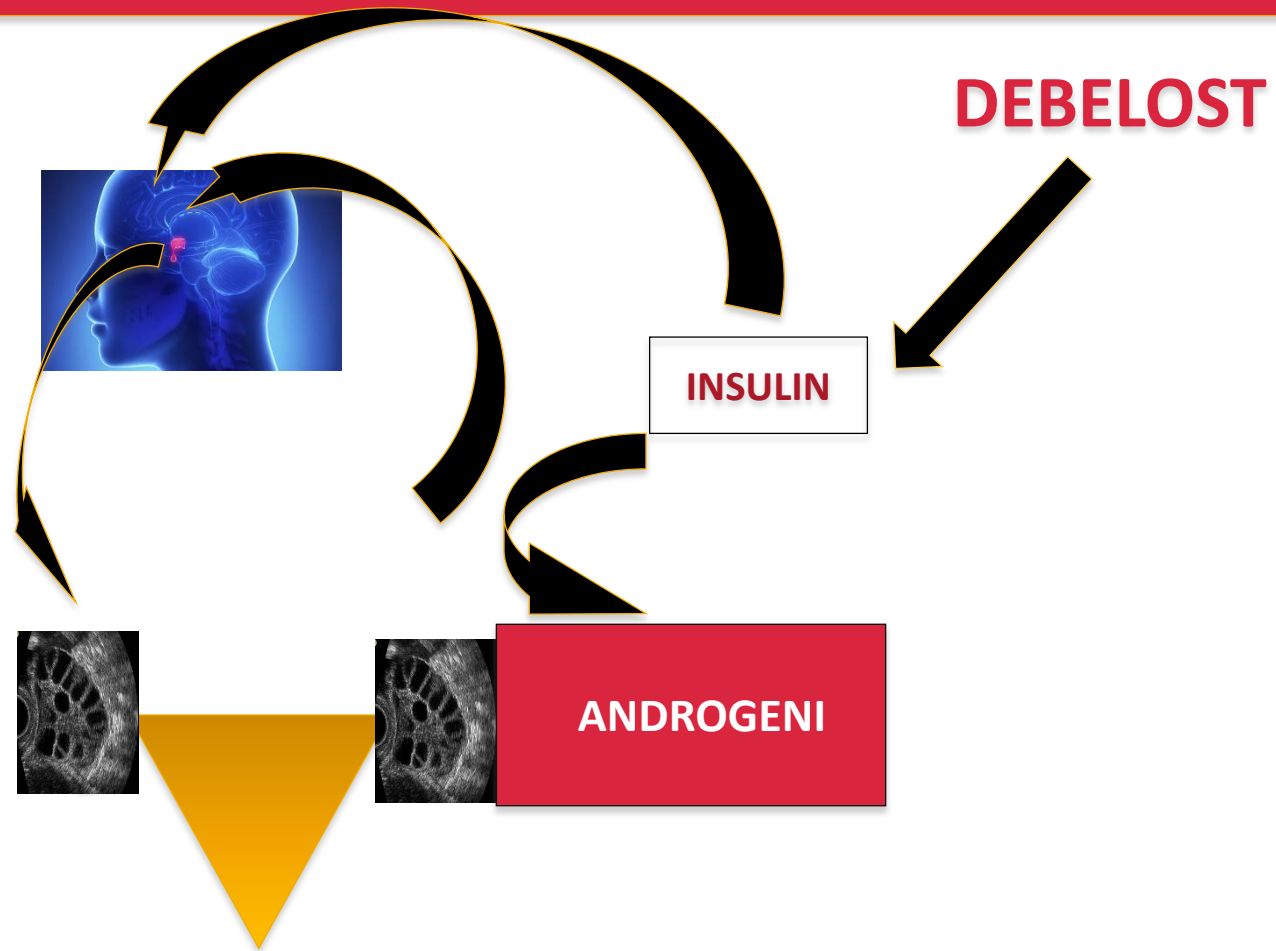
OKOLJE



GENI

Prijemališča zdravljenja PCOS

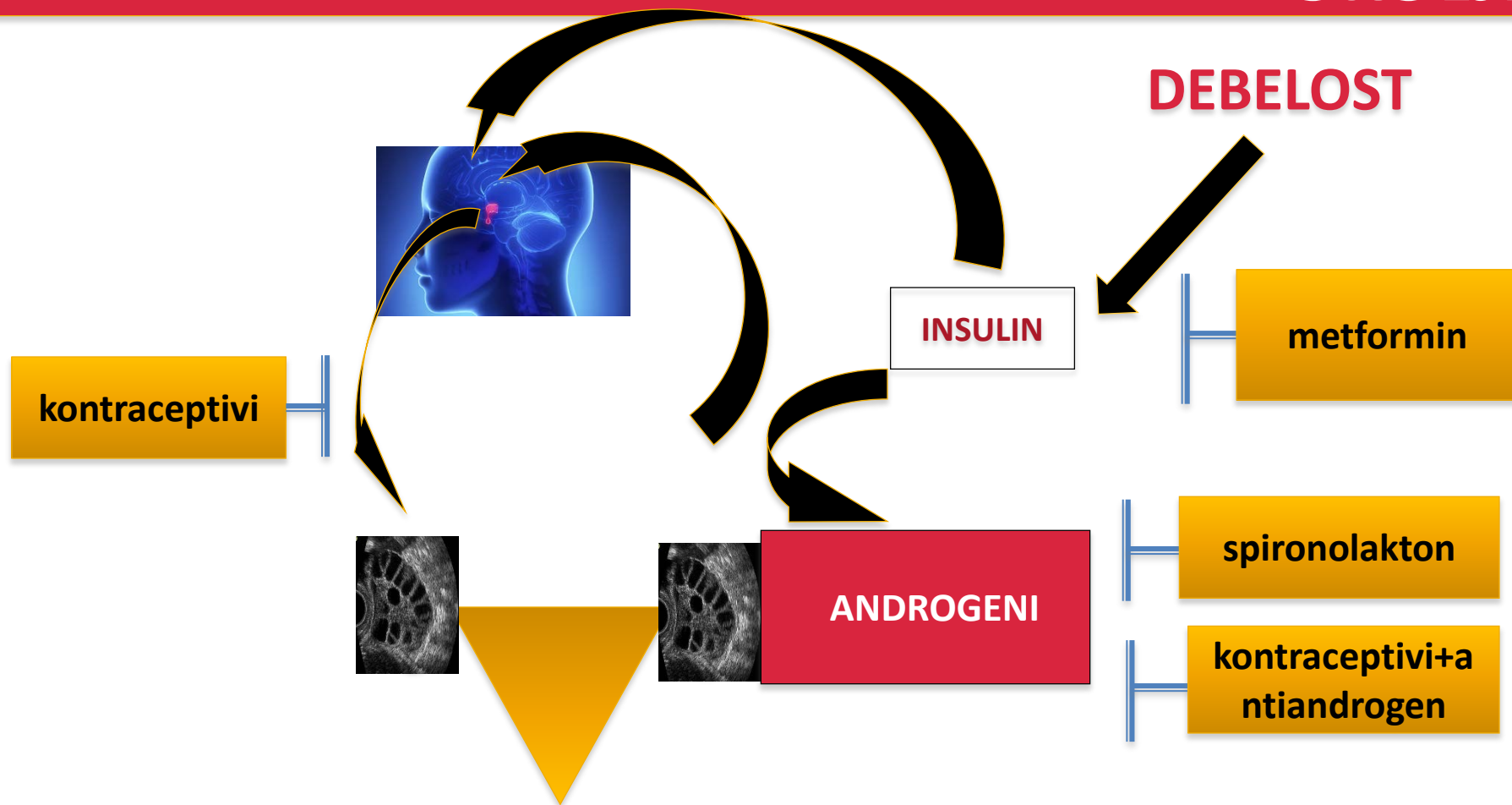
OKOLJE



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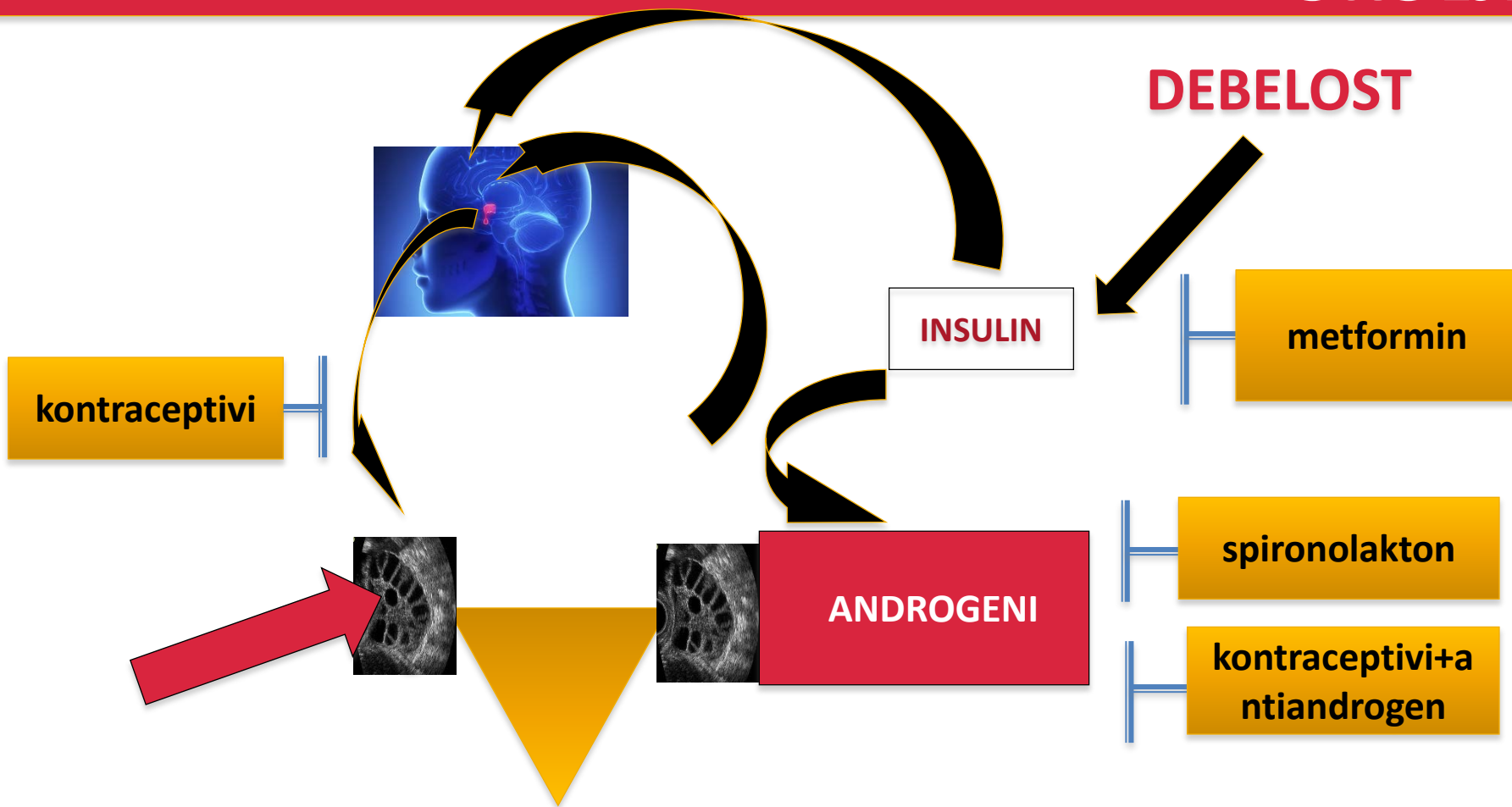
OKOLJE



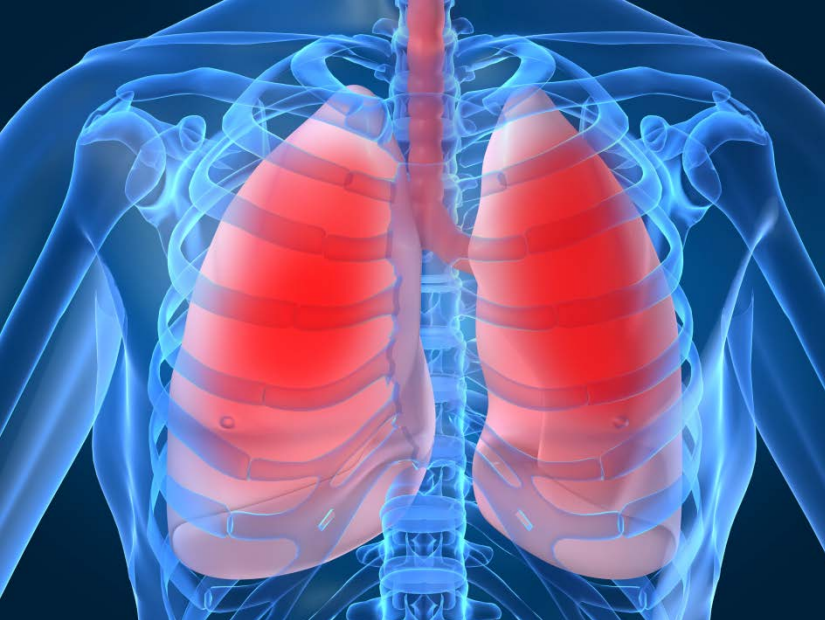
GENI

Prijemališča zdravljenja PCOS

OKOLJE



GENI



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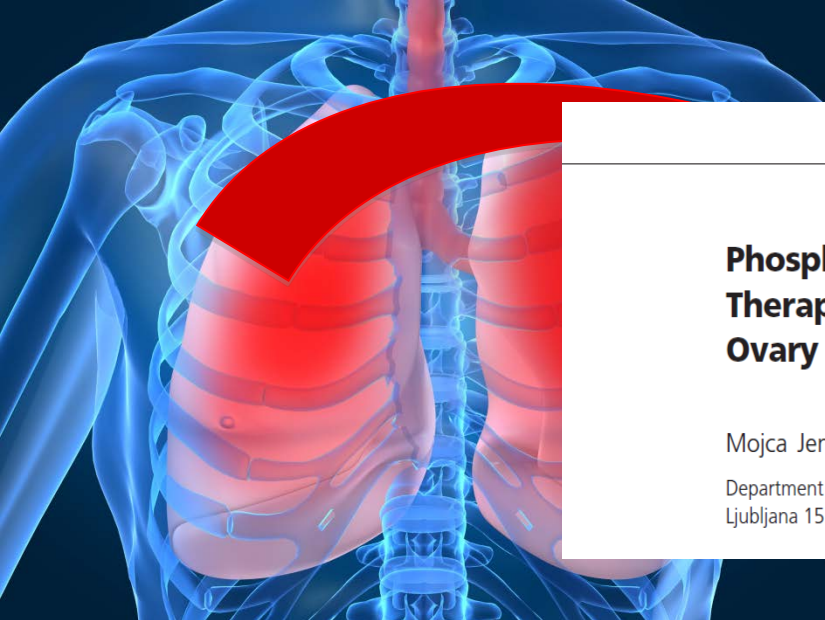


**Inovativno zdravljenje
bolnic s sindromom
policističnih jajčnikov**

»Ugotovljali smo zelo dobre učinke liraglutida predvsem na telesno težo in sestavo v monoterapiji, zlasti pa v kombinaciji z metforminom.«

Raziskovalni tim KP za endokrinologijo, diabetes in bolezni presnove UIK Ljubljane, v katerem so doc. dr. **NOJCA JENSTERLE SEVER**, prof. dr. **ANDREJ ANEŽ**, doc. dr. **TOMAŽ KOČIAN**, **BETI STEPANOVIC** in **MIRELA OŽUR**, verjame, da bodo oblikovali algoritmi zdravljenja, ki bo prilagojen potrebam posameznih bolnic s PCOS.





Phosphodiesterase 4 Inhibition as a Potential New Therapeutic Target in Obese Women With Polycystic Ovary Syndrome

Mojca Jensterle, Tomaz Kocjan, and Andrej Janez

Department of Endocrinology, Diabetes, and Metabolic Diseases, University Medical Center Ljubljana, Ljubljana 1525, Slovenia

DANES
Medicina

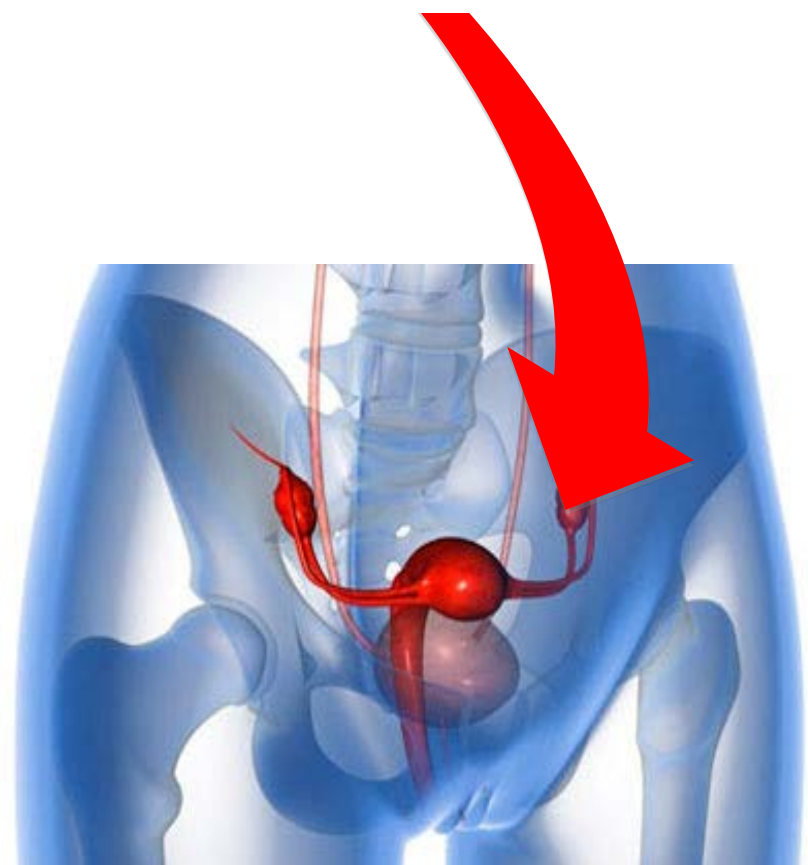
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Calverley PMA, et al. *Lancet* 2009;374:685-94.

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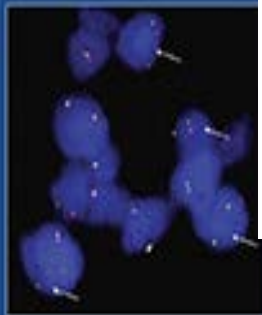
Blokada PDE₄ je ugodno vplivala na zorenje jajčnih foliklov na celičnih kulturah in živalskih modelih.

Tsafiriri A, et al. *Developmental Biology.* 1996; McKenna, et al. *Endocrinology.* 2005;

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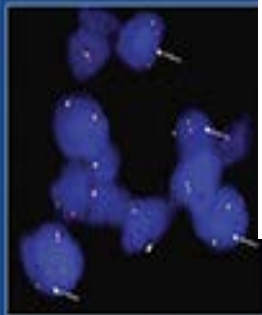


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Phosphodiesterase 4 Inhibition as a Potential New Therapeutic Target in Obese Women With Polycystic Ovary Syndrome

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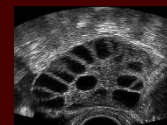
Mojca Jensterle, Tomaz Kocjan, and Andrej Janez

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Tarči

roflumilasta v PCOS

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Meeting Coverage

PDE4 Inhibitor May Help PCOS Patients Slim Down

Published: Jun 23, 2014



By [Kristina Fiore](#), Staff Writer, MedPage Today

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CHICAGO -- Adding the phosphodiesterase-4 (PDE4) inhibitor roflumilast (Daliresp) to metformin may help obese women with polycystic ovarian syndrome (PCOS) shed pounds and improve other metabolic markers, researchers reported.

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PCOS: Adding Anti-Inflammatory Drug Roflumilast to Metformin May Reduce Obesity



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MedicalResearch.com Interview with:

Mojca Jensterle

Department of Endocrinology, Diabetes and Metabolic Diseases, University Medical Centre, Zaloska 7, Slovenia.

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PCOS: Adding Anti-Inflammatory Drug Roflumilast to Metformin May Reduce Obesity



CHICAGO -- Adding the phosphodiesterase-4 (PDE4) inhibitor metformin may help obese women with polycystic ovary syndrome (PCOS) lose weight and improve other metabolic markers, researchers report.

PCOS Research: Highlights from the Endocrine Society's 2014 Annual Meeting

Written by [Louise Chang, MD](#) on 06/24/2014

New PCOS Treatment on the Horizon?

In a preliminary study of 31 patients, researchers find that a drug called roflumilast used along with metformin may help obese women with PCOS lose weight and reduce testosterone levels. Roflumilast is a drug that blocks the effect of an enzyme called phosphodiesterase 4 (PDE4). The researchers were interested in targeting PDE4 because other studies have linked inhibition of the PDE4 enzyme to a boost in metabolism, blood sugar regulation, and weight loss. See more [articles](#) related to weight loss.

Source: Jensterle, M et al. Abstract presented June 21, 2014. "Phosphodiesterase 4 Inhibitor As a Potential New Therapeutic Target in Obese Women with PCOS," The Endocrine Society's Annual Meeting.

STUDIES SEEKING PARTICIPANTS



PCOS Registry
(NU IRB # 8096)

- Women 18 – 45 years old **anywhere in the US** with regular periods or irregular periods or PCOS who are not taking birth control pills.
- The study may require up to 3 visits.
- The study may involve blood draws and other procedures.
- Compensation: Up to \$500.



Researcher:
[Dr. Andrea Dunaif](#)

For more information

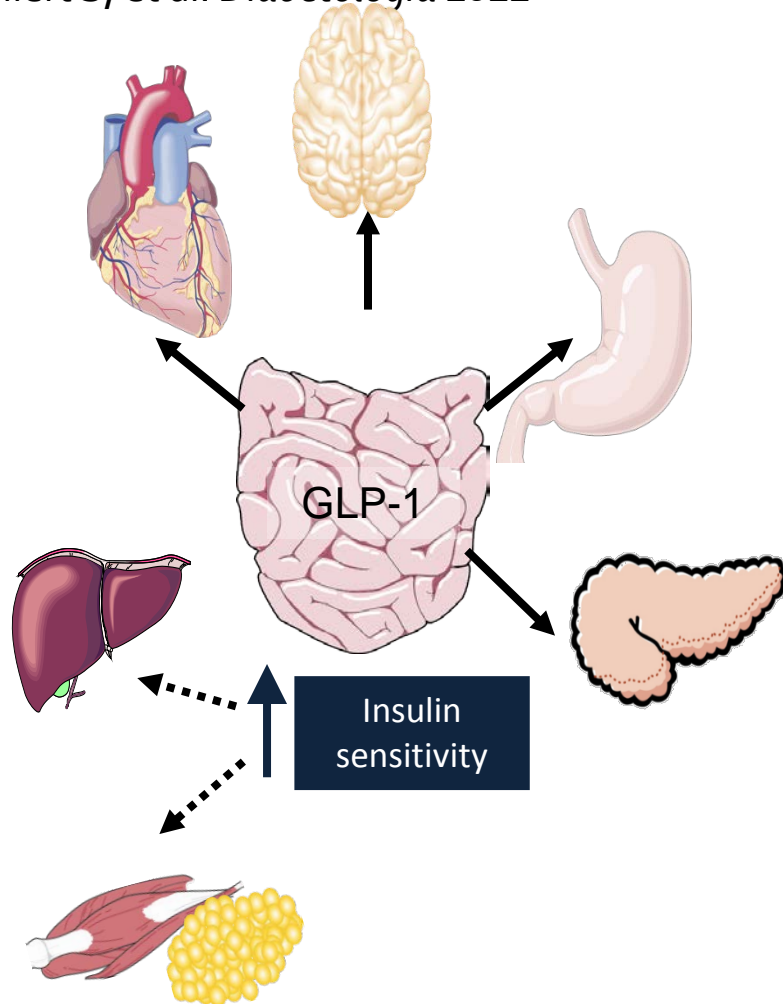
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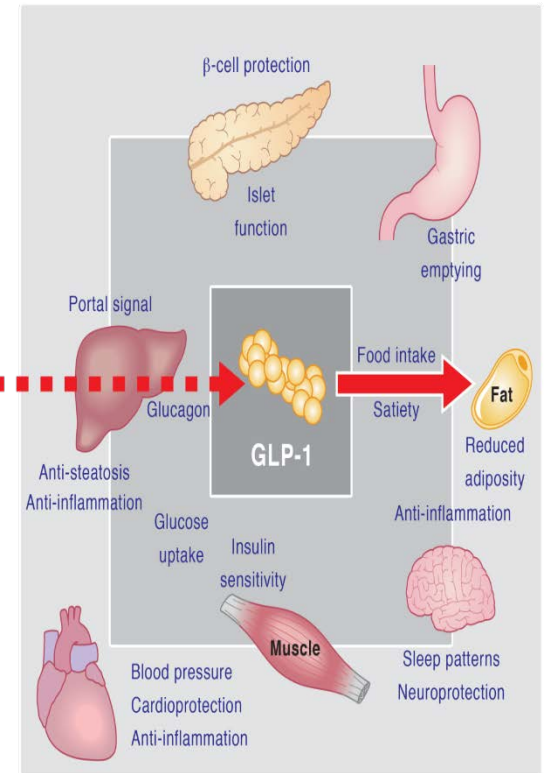
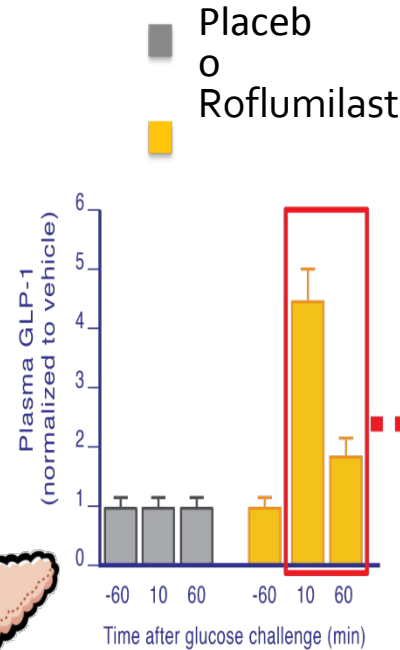
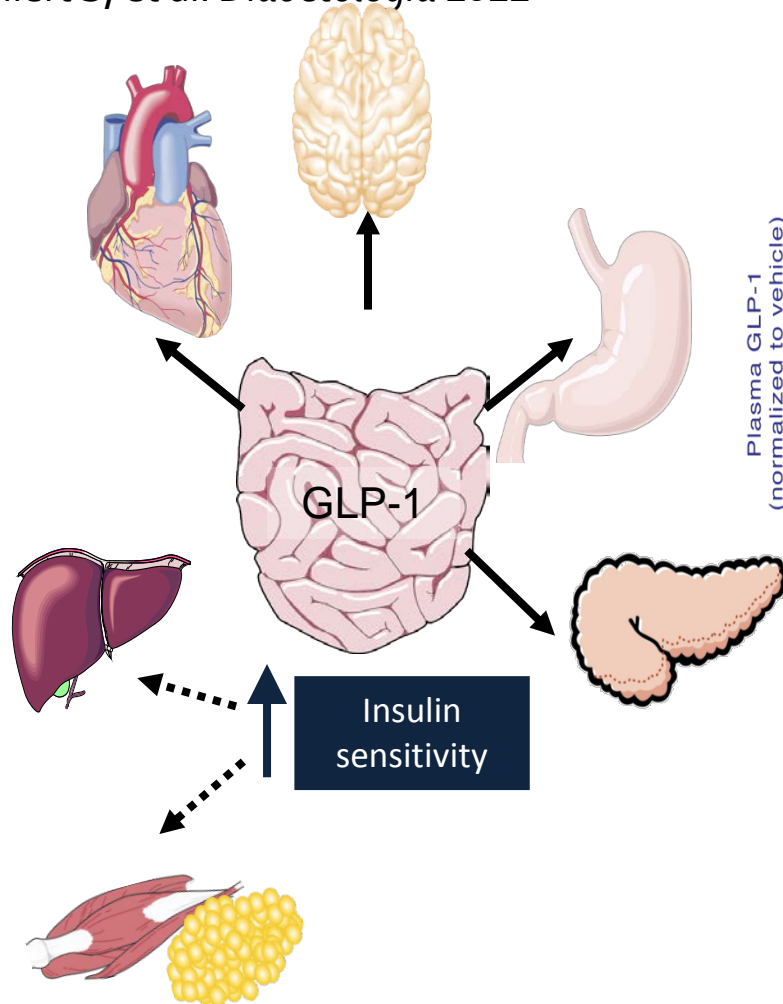
Zakaj PDE4 zaviralci povzročajo hujšanje?

Vollert S, et al. *Diabetologia* 2012



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Short-term combined treatment with liraglutide and metformin leads to significant weight loss in obese women with polycystic ovary syndrome and previous poor response to metformin

Mojca Jensterle Sever, Tomaz Kocjan, Marija Pfeifer, Nika Aleksandra Kravos and Andrej Janez

Department of Endocrinology, Diabetes and Metabolic Diseases, University Medical Center Ljubljana, Zaloska 7, 1525 Ljubljana, Slovenia

Correspondence should be addressed to M Jensterle Sever
Email
mojcjensterle@yahoo.com

Endocrine Research

HORMONES 2014, 13():1-10

Research paper



A 12-week treatment with the long-acting peptide 1 receptor agonist liraglutide leads to significant weight loss in a subset of obese women with newly diagnosed polycystic ovary syndrome

Jensterle *et al.* *Journal of Ovarian Research* (2015) 8:32
DOI 10.1186/s13048-015-0161-3

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Department of Endocrinology, Diabetes and Metabolic Diseases, University Medical Center L

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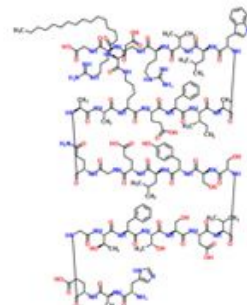
« [Shortage of Buprenorphine Affects Patients in Need of Pain Management and in Detoxification Programs](#)
[Aminocaproic Acid Shortage is Concerning for Surgical and Trauma Centers](#) »

Can Liraglutide Help Patients With PCOS Lose Weight?

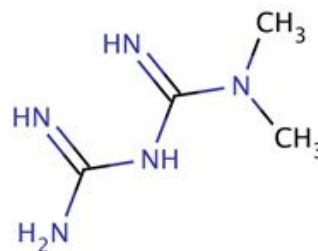
On June 17, 2013 [Endocrine Today](#) reported at the [ENDO 2013 meeting](#) that Liraglutide demonstrated success as a weight loss treatment. Combined with the antidiabetic drug Metformin, Liraglutide was administered on a short term basis to women with polycystic ovary syndrome who were considered obese.

"Obesity is a great problem in women with polycystic ovary syndrome (PCOS) and we do not have a conventional satisfactory treatment for it. The most widely used drug is metformin for women with PCOS and metabolic disturbances, but it's somehow not successful enough to curb obesity. That's why we tried to use our experience with diabetes to test long-acting GLP-1 agonists for any effect on the PCOS population," Jenterle Sever said in an interview.

This study centered on these women with polycystic ovary syndrome, also known as PCOS, as this patient population struggles with both metabolic issues as well as weight loss frustrations. There were 36 women who participated in this randomized study, which lasted twelve weeks. The female participants were dosed with either 1.2 milligrams of Liraglutide (Victoza) as a daily subcutaneous dose, 1000 milligrams of Metformin twice daily or a combination of both medications. The average age of the female patients was 31.3 years old. Of the female participants who received the combination of both Liraglutide and Metformin 22 percent of these women lost more than 5 percent of their body weight. For the female patients who were dosed with Liraglutide there were 16 percent of these women who achieved a weight loss of greater than 5 percent of their total body weight. The patients who were administered Metformin alone did not experience any weight loss. Additionally, the patients in the combination treatment group showed a larger decrease in their BMI and the circumference of their waist. Adverse side effects were minor, and included some mild nausea for the patients who were dosed with Liraglutide alone or with Metformin.



Liraglutide
CAS No: 204656-20-2



Metformin
CAS No: 657-24-9

Contact: Jenni Glenn Gingery
jgingery@endocrine.org
301-941-0240
The Endocrine Society

« [Shortage of Buprenorphine Affects Patients in Need of Pain Aminocaproic Acid Shortag](#)

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Drug combination promotes weight loss in polycystic ovary syndrome

SAN FRANCISCO-- Women with polycystic ovary syndrome, or PCOS, lost significantly more weight when they took two drugs that are traditionally used to treat diabetes, rather than either drug alone, a study from Slovenia demonstrates. The results will be presented Monday at The Endocrine Society's 95th Annual Meeting in San Francisco.

PCOS is the leading cause of infertility among women. In the United States, the disorder affects approximately 5 million women, according to the U.S. Department of Health and Human Services Office of Women's Health. This translates to 1 in 10 to 20 women, overall, who are affected. The disease probably is genetic, although the exact causes are still unknown.

In PCOS, the ovaries produce excessive amounts of male sex hormones, or androgens. The name of the disease derives from small cysts that form on the ovaries, which do not produce enough of the hormone that triggers ovulation. When this occurs, the ovarian follicles, which have filled with fluid in preparation for ovulation, remain as cysts when ovulation fails to take place. In addition to infertility, symptoms include excessive hair growth in areas that usually are relatively hairless; obesity; menstrual irregularity; thinning or balding hair on the scalp; prediabetes or diabetes; and anxiety or depression. Weight loss in these women leads to higher chances of conception, improved pregnancy outcomes and improved metabolic profile.

Treatment varies depending upon the severity of the disease, and includes lifestyle modifications and drug therapy. Some of the same medications that are used to treat diabetes also improve PCOS symptoms. One of these medications, metformin, works by regulating the hormone insulin and by suppressing androgen activity, which, in turn, helps control blood-sugar levels and has beneficial effects on ovarian function. The problem with metformin, however, is that it does not always aid with weight loss.

Because of this, investigators examined different drug combinations to see which ones caused the most weight loss. In addition to metformin, they administered another diabetes medication called liraglutide, both alone and in combination with metformin, to determine which approach led to the greatest amount of weight loss.

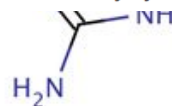
They found that patients who took the combined drugs lost 6.5 kilograms (kg), or about 14 pounds, on average, compared to about 4 kg, or almost 9 pounds, on liraglutide alone, and 1 kg, or about 2 pounds, on metformin alone. Furthermore, 22 percent of participants on the combined treatment lost a significant amount of weight, defined as 5 percent or more of their body weight, compared to 16 percent of those on liraglutide. No one in the metformin group achieved this amount of weight loss. In terms of body-mass index and waist circumference, the combined-treatment group saw greater improvements than either of the single-medication groups. For both of these measurements, liraglutide alone outperformed metformin alone.

"The effect of metformin on weight reduction in polycystic ovary syndrome is often unsatisfactory," said study author Mojca Jensterle Sever, MD, PhD, who served as lead author with Andrej Janez, MD, PhD, a fellow consultant at the University Medical Center in Ljubljana, Slovenia. "Short-term combined treatment with liraglutide and metformin appears better than either metformin or liraglutide alone on weight loss and decrease in waist circumference in obese women with PCOS who had been previously poor responders regarding weight reduction on metformin alone."

The main side effect was nausea, which occurred more often with liraglutide than with metformin. The nausea did improve with time, however, and was not associated with weight loss.

Study participants comprised 36 women with PCOS who had lost less than 5 percent of their body weight on a six-month course of metformin preceding the study. Their average age was 31 years. Investigators randomly assigned them to one of three treatment groups for the 12-week study, including metformin alone, liraglutide alone, and both medications.

The University Medical Center Ljubljana, Slovenia, funded the study.



Metformin
CAS No: 657-24-9

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 The Endocrine Society

« Shortage of Buprenorphine Affects Patients in Need of Pain Aminocaproic Acid Shortag

Can Liraglutide Help Patients Lose Weight?

Drug combination promotes weight loss in polycystic ovary syndrome

SAN FRANCISCO-- Women with polycystic ovary syndrome, or PCOS, lost significantly more weight when they took two drugs that are traditionally used to treat diabetes, rather than either drug alone, a study from Slovenia demonstrates. The results will be presented Monday at The Endocrine Society's 95th Annual Meeting in San Francisco.

PCOS is the leading cause of infertility among women. In the United States, the disorder affects approximately 5 million women, according to the U.S. Department of Health and Human Services Office of Women's Health. This translates to 1 in 10 to 20 women, overall, who are affected. The disease is not fully understood.

... sex hormones, or androgens. The name of the disease derives from small cysts that form on the ovaries that triggers ovulation. When this occurs, the ovarian follicles, which have filled with fluid in preparation for ovulation, fails to take place. In addition to infertility, symptoms include excessive hair growth in areas where it is not typical; irregularity; thinning or balding hair on the scalp; prediabetes or diabetes; and anxiety or depression. The disorder also increases the chances of conception, improved pregnancy outcomes and improved metabolic profile.

... ase, and includes lifestyle modifications and drug therapy. Some of the same medications that are used to treat diabetes. One of these medications, metformin, works by regulating the hormone insulin and by lowering blood-sugar levels and has beneficial effects on ovarian function. The problem with metformin alone is that it does not address the hormonal imbalance that causes weight loss.

... combinations to see which ones caused the most weight loss. In addition to metformin, they tested liraglutide, both alone and in combination with metformin, to determine which approach led to the most weight loss.

... lost 6.5 kilograms (kg), or about 14 pounds, on average, compared to about 4 kg, or almost 9 pounds, on metformin alone. Furthermore, 22 percent of participants on the combined treatment lost more than 10 percent of their body weight, compared to 16 percent of those on liraglutide. No one in the combined treatment group saw an increase in body-mass index and waist circumference, the combined-treatment group saw no increase in waist circumference. For both of these measurements, liraglutide alone outperformed metformin alone.

... c ovary syndrome is often unsatisfactory," said study author Mojca Jensterle Sever, MD, PhD, a fellow consultant at the University Medical Center in Ljubljana, Slovenia. "Short-term studies have shown that metformin or liraglutide alone on weight loss and decrease in waist circumference are better than either metformin or liraglutide alone on weight loss and decrease in waist circumference previously poor responders regarding weight reduction on metformin alone."

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... of the study.



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Meeting Coverage

Victoza May Help with Weight in Ovary Disorder

Published: Jun 19, 2013



By **Todd Neale**, Senior Staff Writer, MedPage Today
 Reviewed by **F. Perry Wilson, MD, MSCE**; Instructor of Medicine, Perelman School of Medicine at the University of Pennsylvania and **Dorothy Caputo, MA, BSN, RN, Nurse Practitioner**

A medical news collaboration between:



Metformin
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... of Metformin twice daily or a combination of both medications. The average age of the female patients was 31.3 years old. Of the female participants who received the combination of both Liraglutide and Metformin 22 percent of these women lost more than 5 percent of their body weight. For the female patients who were dosed with Liraglutide there were 16 percent of these women who achieved a weight loss of greater than 5 percent of their total body weight. The patients who were administered Metformin alone did not experience any weight loss. Additionally, the patients in the combination treatment group showed a larger decrease in their BMI and the circumference of their waist. Adverse side effects were minor, and included some mild nausea for the patients who were dosed with Liraglutide alone or with Metformin.

« Shortage of Buprenorphine Affects Patients in Need of Pain Aminocaproic Acid Shortag

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Liraglutide-metformin combo superior to either treatment alone for weight loss in PCOS

June 17, 2013

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SAN FRANCISCO — Short-term combination liraglutide and metformin yielded significant weight loss among obese women with polycystic ovary syndrome, **Mojca Jensterle Sever, MD, PhD**, of the University Medical Center in Ljubljana, Slovenia, told *Endocrine Today* here at ENDO 2013.

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"Obesity is a great problem in women with polycystic ovary syndrome (PCOS) and we do not have a conventional satisfactory treatment for it. The most widely used drug is metformin for women with PCOS and metabolic disturbances, but it's somehow not successful enough to curb obesity. That's why we tried to use our experience with diabetes to test long-acting GLP-1 agonists for any effect on the PCOS population," Jenterle Sever said in an interview.

She and colleagues conducted a 12-week open, metformin-controlled trial by randomly assigning 36 obese women with PCOS aged 31.3 years (BMI 37.1 kg/m²) to one of the following treatment arms: metformin 1,000 mg twice daily (n=14), liraglutide (Victoza, Novo Nordisk) 1.2-mg administered daily subcutaneously (n=11) or combined therapy (n=11).

Jensterle Sever said that 38% of patients lost ≥5% body weight (22% in the combination group, 16% in the liraglutide group and zero in the metformin group). Patients assigned to combination therapy lost an average of 6.5 kg vs. 3.8 kg among those in the liraglutide group and 1.2 kg in the metformin group (*P*<.001), according to data.

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Meeting Coverage

Victoza May Help with Weight in Ovarian Disorder

Published: Jun 19, 2013

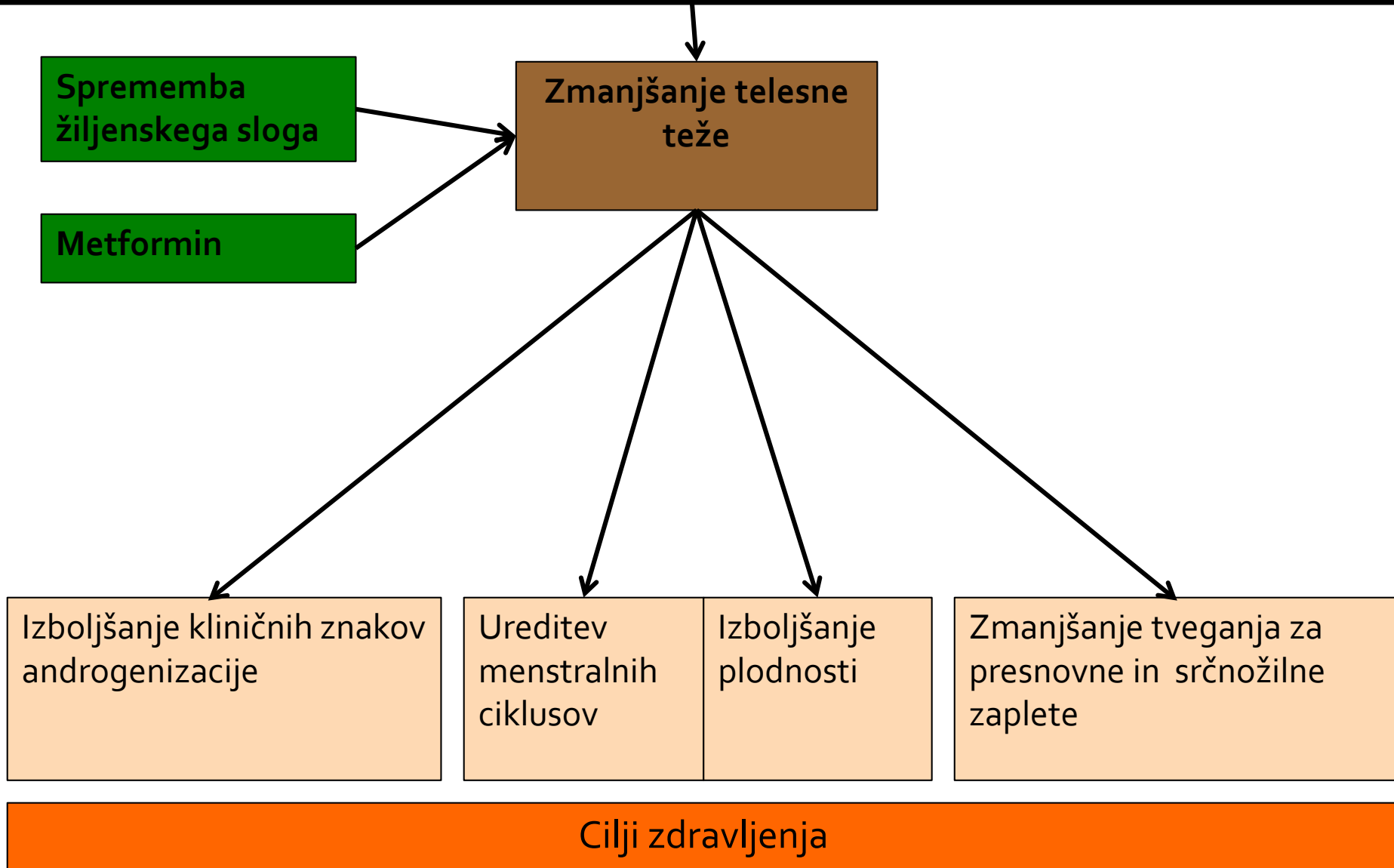


Planner

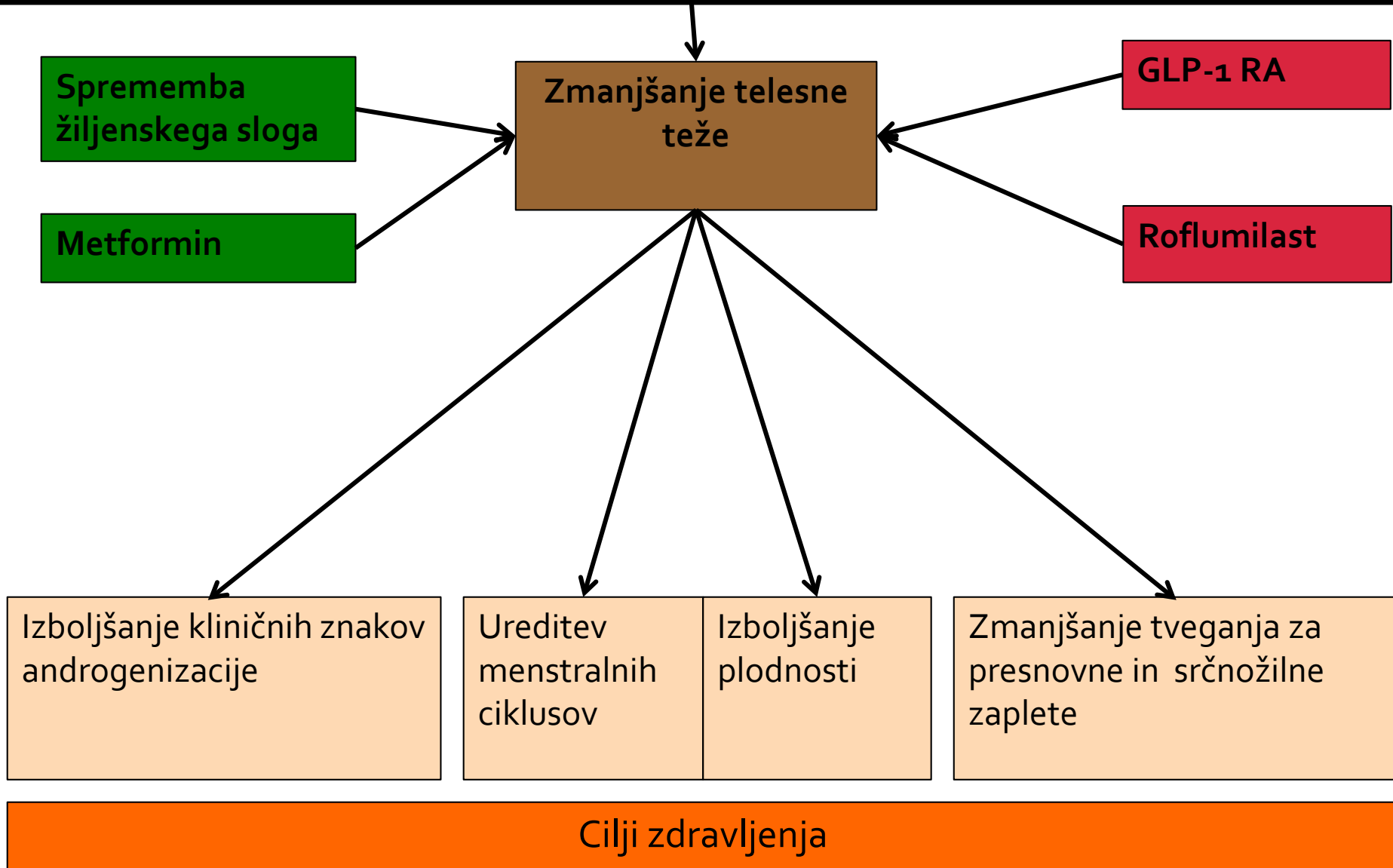
By **Todd Neale**, Senior Staff Writer, MedPage Today
 Reviewed by **F. Perry Wilson, MD, MSCE**; Instructor of Medicine, Perelman School of Medicine at the University of Pennsylvania and **Dorothy Caputo, MA, BSN, RN, Nurse**

of Metformin twice daily or a combination of both medications. The average age of the female patients was 31.3 years old. Of the female participants who received the combination of both Liraglutide and Metformin 22 percent of these women lost more than 5 percent of their body weight. For the female patients who were dosed with Liraglutide there were 16 percent of these women who achieved weight loss of greater than 5 percent of their total body weight. The Metformin alone did not experience any weight loss. Additionally, the treatment group showed a larger decrease in their BMI and the side effects were minor, and included some mild nausea for the Liraglutide alone or with Metformin.

Pristopi v zdravljenju debelih PCOS



Pristopi v zdravljenju debelih PCOS



Pristopi v zdravljenju debelih PCOS

Sprememba
žiljenskega sloga

Metformin



GLP-1 RA

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