Clinical Trial Results

Drug Studied: JZP-110, also known as solriamfetol

A trial to learn how solriamfetol worked and how safe it was in people with excessive daytime sleepiness caused by obstructive sleep apnea

Jazz Pharmaceuticals®

Thank you!

Thank you to the people who took part in this clinical trial to study JZP-110, also known as solriamfetol or Sunosi®. The participants in this and other clinical trials helped researchers learn more about how solriamfetol works in people who have excessive daytime sleepiness caused by obstructive sleep apnea.

Jazz Pharmaceuticals sponsored this trial and thinks it is important to share the results with the trial participants and the general public.

If you participated in the trial and have questions about the results, please speak to someone at your trial site, or talk to your doctor.

It is important to note that this summary only shows the results of a single trial. Other trials could have different results. Researchers and health authorities look at the results of many trials to determine which drugs work and how safe they are. It takes many participants in multiple trials around the world to help answer these questions.

What has happened since the trial ended?

The participants were in this trial for about 14 to 18 weeks, but the entire trial took about 1 year and 7 months to finish. The trial started in May 2015 and ended in December 2016.

Jazz Pharmaceuticals reviewed the data when the trial ended and created a report of the results. This is a summary of that report.

You can find more information about this trial in the websites listed at the end of this summary.

Why was the research needed?

Obstructive sleep apnea, also called OSA, is a chronic sleep disorder. People with OSA have short periods during sleep when they stop breathing because the muscles in their throat are not working properly to keep their airway open.

There are treatments to help manage OSA and improve nighttime breathing. One of these treatments is **continuous positive airway pressure, also called CPAP**. A CPAP machine gently blows air into a person's nose and mouth through a mask to help keep their airway open while they sleep.

Even with treatment, people with OSA often feel like they have not gotten a good night's sleep. One of the symptoms of OSA is feeling very sleepy during the day, a condition known as **excessive daytime sleepiness**. Excessive daytime sleepiness can cause people with OSA to fall asleep when they are supposed to be awake. It can also make it difficult for them to do many of the things they need to do every day.

Solriamfetol is a drug that is thought to affect 2 chemicals in the brain that help keep people awake during the day. Solriamfetol was not designed or studied as a treatment for the causes of OSA. But researchers studied it as a possible treatment for excessive daytime sleepiness caused by OSA.

The main questions the researchers wanted to answer in this trial were:

- Did solriamfetol help the participants stay awake during the day?
- Did solriamfetol help the participants feel less sleepy during the day?
- What medical problems did the participants have during the trial?

Who took part in the trial?

To answer these questions, the researchers asked for the help of 297 men and 177 women with excessive daytime sleepiness caused by OSA.

There were 474 participants in this trial from 59 trial sites in the United States, Germany, Canada, and the Netherlands. Everyone in this trial was 20 to 75 years old when they joined.

What kind of trial was this?

This was a Phase 3 trial. In a Phase 3 trial, a drug is usually tested in a large number of participants with a specific disease or condition. Drugs tested in Phase 3 trials have already been studied in smaller trials. Phase 3 trial participants help researchers learn more about how a drug works and how safe it is.

This was also a "double-blind" trial. This means that none of the participants, doctors, or other staff knew during the trial which treatment each participant was taking. Some trials are done this way because knowing what treatment each participant is taking can affect the results. When the trial ended, the sponsor found out which treatment each participant took so they could report the trial results.

The participants in this trial took one of the following treatments every morning:

- Solriamfetol 37.5 milligrams
- Solriamfetol 75 milligrams
- Solriamfetol 150 milligrams
- Solriamfetol 300 milligrams
- A **placebo**

A placebo looks like the trial drug but does not have any real medicine in it. When participants take a placebo, they follow the same steps in a trial as someone who takes the trial medicine. The only difference is whether or not the participant gets the trial drug. This helps researchers better understand the actual effects of the drug.

The researchers used a computer program to randomly choose the treatment each participant would take.

What happened during the trial?

Before treatment started, people who wanted to join the trial met with a trial doctor. The doctors made sure that everyone who joined the trial had OSA and excessive daytime sleepiness that could not be explained by other common causes, such as too little sleep at night, a work schedule that interfered with regular nighttime sleep, or a medical problem besides OSA.

They also made sure the participants were using or had at least tried to use a treatment for OSA such as CPAP therapy. They gave the participants a full check-up to make sure they were healthy enough to join the trial.

This part took up to 1 month.

During treatment, the participants took their assigned treatment every morning for 12 weeks. They visited the trial site 5 more times. During these visits, the trial staff checked the participants' health by measuring their vital signs – such as temperature and blood pressure – and looking at their heart activity with a test called an "electrocardiogram".

The participants:

- Told the trial staff how they were feeling and what medications they were taking
- Completed questionnaires
- Gave blood and urine samples

During 3 of these visits, the participants stayed overnight at the trial site so the trial doctors could study their nighttime sleep and daytime sleepiness.

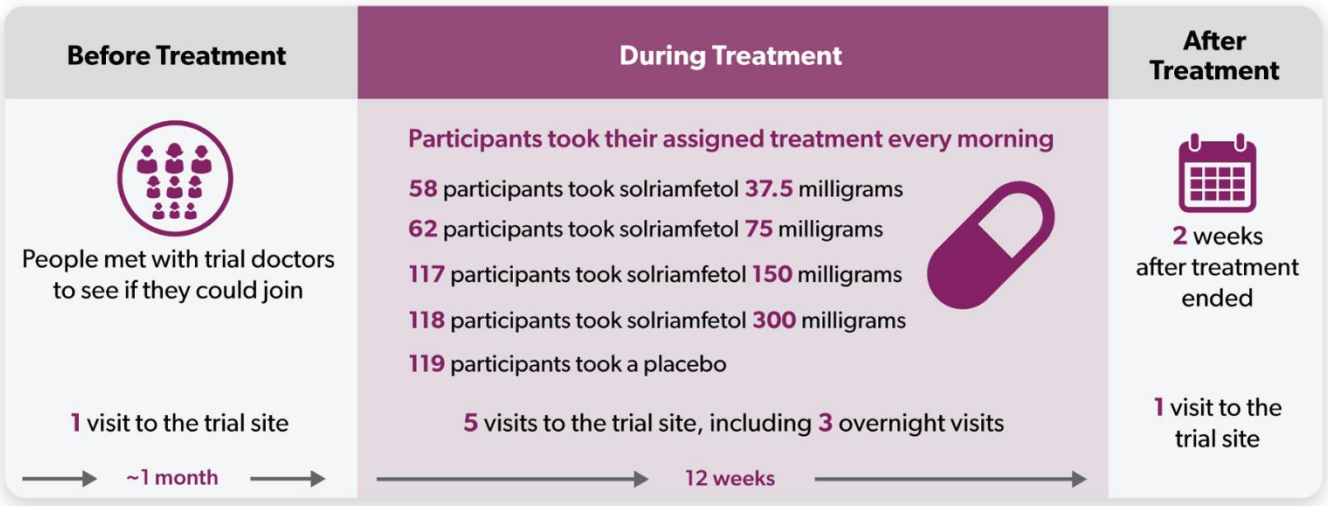
The nighttime sleep study, which is called "polysomnography", measured brain function, eye movements, muscle activity, heart function, and blood oxygen levels during sleep.

Daytime sleepiness was measured with the **Maintenance of Wakefulness Test**, which measured each participant's ability to stay awake during the day in a dark and quiet room. This test helps researchers understand how well someone functions and stays alert during quiet times of the day when they are less active.

Throughout the trial, the trial staff also contacted the participants by phone to ask how they were feeling and what medications they were taking.

After treatment ended, the participants visited the trial site 1 more time as part of this study. This happened about 2 weeks after they finished treatment.

The figure below shows how the trial was done.



What were the results of the trial?

This is a summary of the overall results of the trial. Results for each participant may have been different and are not in this summary. You can find more information about this trial – including other questions the researchers wanted to answer – in the websites listed at the end of this summary.

Researchers look at the results of many trials to decide which treatments work best and are safest. Other trials could have different results.

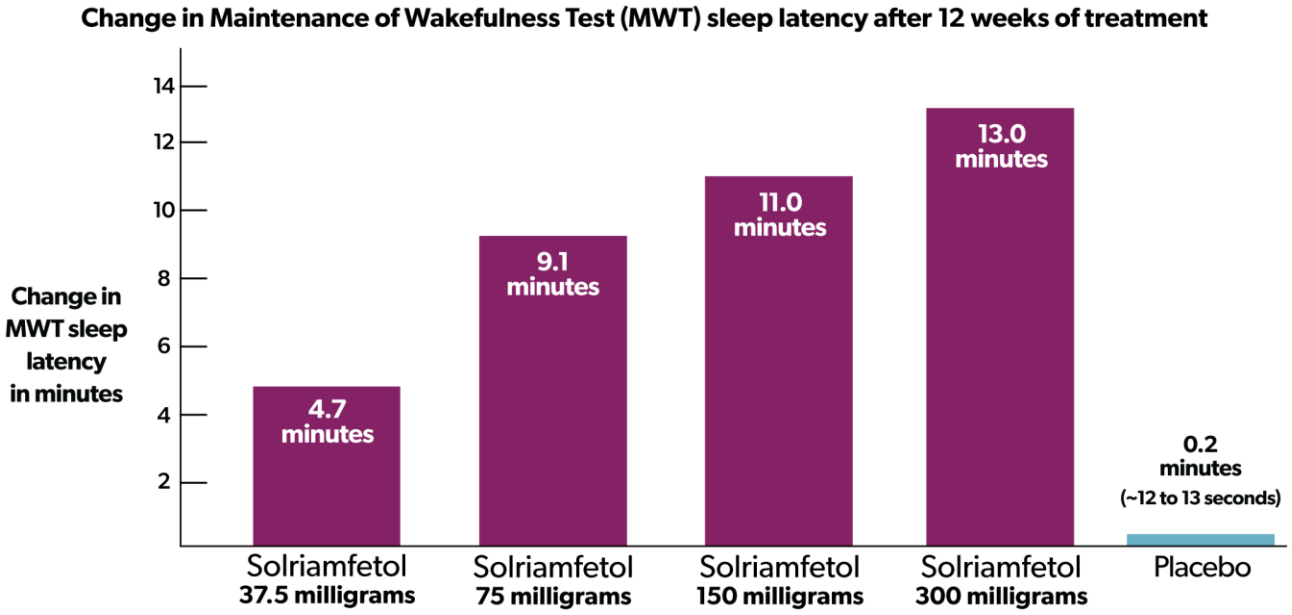
Did solriamfetol help the participants stay awake during the day?

To answer this question, the trial doctors looked at how long the participants were able to stay awake during the **Maintenance of Wakefulness Test (MWT)**. This is called the **MWT sleep latency**.

The doctors measured the participants' MWT sleep latency from 1 to 9 hours after they took their assigned treatment in the morning. Then they looked at how MWT sleep latency changed after 12 weeks for the participants who took solriamfetol compared with the participants who took a placebo.

If a participant's MWT sleep latency increased over time, it means that they were able to stay awake longer during the test.

After 12 weeks of treatment, the average amount of time that participants could stay awake increased more for participants who took solriamfetol each morning than for participants who took a placebo.



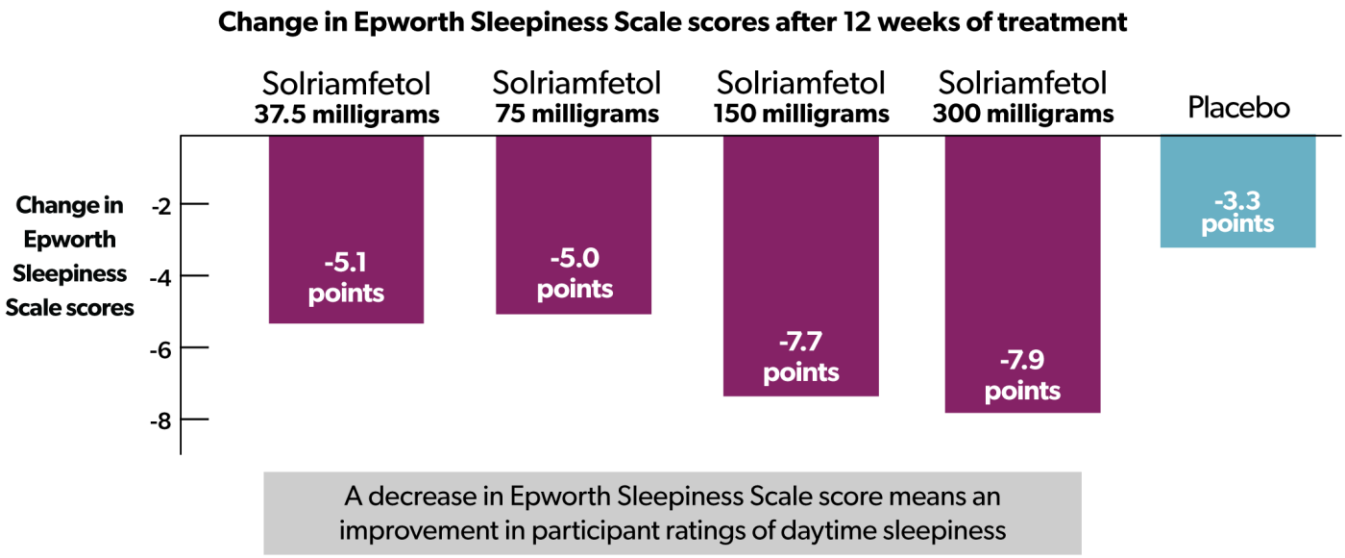
An increase in MWT sleep latency means participants were able to stay awake longer during the Maintenance of Wakefulness Test

Did solriamfetol help the participants feel less sleepy during the day?

To answer this question, the trial doctors looked at how the participants responded to a questionnaire called the **Epworth Sleepiness Scale**. This questionnaire asked the participants to rate how likely they were to fall asleep in different situations.

Higher scores mean more daytime sleepiness.

After 12 weeks of treatment, average daytime sleepiness scores dropped more for the participants who took solriamfetol each morning than for the participants who took a placebo.



What were the other results of the trial?

The participants also completed a questionnaire that asked them to rate how they thought their overall condition had changed from the start of treatment to the end of treatment. The researchers looked at questionnaire responses from 459 of the 474 participants.

After 12 weeks, more participants who took solriamfetol each morning rated their condition as improved compared with the participants who took a placebo:

- 31 of 56 participants (55%) who took solriamfetol 37.5 milligrams reported improvement
- 42 of 58 participants (72%) who took solriamfetol 75 milligrams reported improvement
- 104 of 116 participants (90%) who took solriamfetol 150 milligrams reported improvement
- 102 of 115 participants (89%) who took solriamfetol 300 milligrams reported improvement
- 56 of 114 participants (49%) who took a placebo reported improvement

But the difference between the group that took the lowest dose of solriamfetol (37.5 milligrams) and the group that took a placebo was too small for the researchers to know whether this difference was caused by the trial drug.

What medical problems did the participants have during the trial?

This section is a summary of the medical problems the participants had during treatment. These medical problems are called **adverse events**. An adverse event is considered "serious" when it is life threatening, causes lasting problems, or requires hospital care.

A lot of research is needed to know whether a treatment causes a medical problem. So, when new drugs are being studied, researchers keep track of all of the medical problems that participants have during a trial.

The websites listed at the end of this summary may have more information about the medical problems that happened in this trial.

How many participants had any serious adverse events?

Solriamfetol 37.5 milligrams	Solriamfetol 75 milligrams	Solriamfetol 150 milligrams	Solriamfetol 300 milligrams	Placebo
2 out of 58 participants (3.4%)	0 out of 62 participants	1 out of 117 participants (0.9%)	0 out of 118 participants	2 out of 119 participants (1.7%)

None of the participants died during the trial.

What serious adverse events happened during the trial?

These were the serious adverse events that happened during treatment:

- 1 participant who took solriamfetol 37.5 milligrams had a blockage in a bile duct, which is a tube that connects the liver to the gut
- 1 participant who took solriamfetol 37.5 milligrams had an infection in the heart called *Streptococcus* endocarditis
- 1 participant who took solriamfetol 150 milligrams had high blood sugar
- 1 participant who took a placebo had swelling of the thyroid gland in the neck, also called a goiter
- 1 participant who took a placebo had 3 serious adverse events: a car accident, back pain, and pain along a nerve that runs from the lower back down the legs (also known as sciatica)

The trial doctors thought these serious adverse events were not related to treatment with solriamfetol.

How many participants had any adverse events?

The table below shows how many participants in each group had adverse events and how many participants stopped their trial treatment because of adverse events.

How many participants had at least 1 adverse event?				
Solriamfetol 37.5 milligrams	**Solriamfetol 75 milligrams**	**Solriamfetol 150 milligrams**	**Solriamfetol 300 milligrams**	**Placebo**
37 out of 58 participants (63.8%)	30 out of 62 participants (48.4%)	83 out of 117 participants (70.9%)	91 out of 118 participants (77.1%)	57 out of 119 participants (47.9%)

How many participants stopped taking their trial treatment because of an adverse event?				
Solriamfetol 37.5 milligrams	**Solriamfetol 75 milligrams**	**Solriamfetol 150 milligrams**	**Solriamfetol 300 milligrams**	**Placebo**
3 out of 58 participants (5.2%)	2 out of 62 participants (3.2%)	5 out of 117 participants (4.3%)	15 out of 118 participants (12.7%)	4 out of 119 participants (3.4%)

What adverse events did the participants have?

The table below shows the most common adverse events that happened in at least 10% of the participants in any treatment group. There were other adverse events, but they happened in fewer participants.

The most common adverse events in this trial

	Solriamfetol 37.5 milligrams Out of 58 participants	**Solriamfetol 75 milligrams** Out of 62 participants	**Solriamfetol 150 milligrams** Out of 117 participants	**Solriamfetol 300 milligrams** Out of 118 participants	**Placebo** Out of 119 participants
Headache	4 participants (6.9%)	5 participants (8.1%)	10 participants (8.5%)	17 participants (14.4%)	10 participants (8.4%)
Nausea	3 participants (5.2%)	3 participants (4.8%)	10 participants (8.5%)	12 participants (10.2%)	7 participants (5.9%)
Loss of appetite	1 participant (1.7%)	3 participants (4.8%)	9 participants (7.7%)	14 participants (11.9%)	1 participant (0.8%)
Anxiety	1 participant (1.7%)	2 participants (3.2%)	6 participants (5.1%)	16 participants (13.6%)	0 participants

How has this trial helped?

The results of this trial helped the researchers learn more about how solriamfetol works in people with excessive daytime sleepiness caused by OSA. Clinical trials like this are important to help researchers understand which treatments work best and are safest for patients.

Researchers and health authorities look at the results of many trials to understand how a drug works. This summary only shows the main results from this trial. Other trials might provide different results. If you have questions about these results, please speak with the doctor or staff at your trial site, or talk to your doctor.

Clinical trials with solriamfetol are ongoing, and more trials are planned.

Where can I learn more about this trial?

You can find more information about this trial on the websites listed below. If a report of the results is available, it can also be found there.

- http://www.clinicaltrialsregister.eu – On this website, click "Home and Search". Then type **2014-005514-31** in the search box and click "Search".
- http://www.clinicaltrials.gov – On this website, type **NCT02348606** into one of the search boxes and click "Search".

Trial title: A Twelve-Week, Double-Blind, Placebo-Controlled, Randomized, Parallel-Group, Multicenter Study of the Safety and Efficacy of JZP-110 [(*R*)-2-amino-3-phenylpropylcarbamate hydrochloride] in the Treatment of Excessive Sleepiness in Subjects with Obstructive Sleep Apnea (OSA)

Protocol number: 14-003

You can find more information about solriamfetol here:

- https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/211230s000lbl.pdf

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Thank you!

Jazz Pharmaceuticals would like to thank the people who participated in this clinical trial. Clinical trial participants help researchers and health authorities find answers to important health questions and discover new treatments.

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