

Aristada™ vs Abilify Maintena™

	Abilify Maintena™	Aristada™
Administration	Intramuscular deltoid or gluteal muscle injection	Depends on dosage <ul style="list-style-type: none"> • 441 mg dose: intramuscular injection • All other doses: gluteal injection
Time to peak	4 to 7 days	16 to 35 days
Dosing schedule	Monthly	Monthly to every two months
Oral overlap	14 days	21 days, or single dose of Aristada™ Initio (with one time 30 mg oral dose)

No data has shown a clinical difference in efficacy between the two formulations

Aristada (Aripiprazole Lauroxil). Package Insert. Alkermes Inc; October 2015.
 Aristada (Aripiprazole Lauroxil). Package Insert. Alkermes Inc; 2018.
 Abilify Maintena (Aripiprazole). Package Insert. Otsuka Pharmaceutical Co; January 2016



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Olanzapine pamoate (Zyprexa Relprevv™)

- Indication
 - Treatment of schizophrenia
- Pharmacokinetics
 - Time to peak: 7 days
 - Time to steady state: 5 months



Zyprexa Relprevv (olanzapine). Package Insert. Eli Lilly and Company; 2009.
 drugsdepot.com. "Zyprexa Relprevv 405 Mg 1 By Lilly Eli & Co." Accessed February 5, 2022. <https://www.drugsdepot.com/store.php/drugsdepot/pd9643909/zyprexa-reprevv-405-mg-1-by-lilly-eli-amp-co>.



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Olanzapine pamoate (Zyprexa Relprevv™) dosing

Initial oral dose	Initial dose*	Maintenance dose	Dosing interval	Oral overlap
10 mg daily	210 mg every 2 weeks 405 mg every 4 weeks	150 mg every 2 weeks 300 mg every 4 weeks	2 to 4 weeks	None
15 mg daily	300 mg every 2 weeks	210 mg every 2 weeks 405 mg every 4 weeks		
20 mg daily	300 mg every 2 weeks	300 mg every 2 weeks		

*Initial dose is based on target oral olanzapine dose, and is continued for 8 weeks before going to maintenance dose

Zyprexa Relprevv (olanzapine). Package Insert. Eli Lilly and Company; 2009.



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Olanzapine pamoate (Zyprexa Relprevv™) administration

- Intramuscular gluteal muscle injection only
- Must ensure vial is appropriately reconstituted with no remaining powder clumps before administration
- Once needle has been inserted into muscle, aspiration should be maintained for several seconds to ensure no blood is drawn into the syringe
 - If blood aspirates into the syringe, the syringe should be discarded and new drug should be prepared for administration
- Once injection is administered, patient must be monitored for 3 hours and accompanied by someone to their destination when leaving

Zyprexa Relprevv (olanzapine). Package Insert. Eli Lilly and Company; 2009.



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Olanzapine pamoate (Zyprexa Relprevv™) missed doses

- Patient not at steady state
 - Give recommended loading dose for 8 weeks
- Patient at steady state and ≤2 months since last dose
 - Give next dose as soon as possible
- Patient at steady state and >2 months since last dose
 - Give recommended loading dose for 8 weeks

Carpenter, Jasmine, and Kong K. Wong. *Current Psychiatry* 17, no. 7 (July 2018): 10–12, 14–19, 56.



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Olanzapine pamoate (Zyprexa Relprevv™) safety

- Contraindications
 - None
- Warnings
 - Post-injection delirium/sedation syndrome
 - FDA REMS program is active, but currently on hold as of March 2020
 - Can cause cerebrovascular events, including stroke, in elderly patients with dementia-related psychosis
- Major drug interactions
 - CYP1A2 inducers and inhibitors
 - CNS depressants
 - Antihypertensive agents

Zyprexa Relprevv (olanzapine). Package Insert. Eli Lilly and Company; 2009.

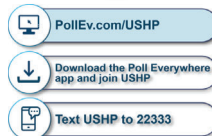


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Audience Response Question

SM presents to your clinic to initiate therapy with an LAI antipsychotic. She is well controlled taking olanzapine 20 mg daily. Which of the following should you consider prior to administering the olanzapine LAI (Zyprexa Relprevv™) injection?

- Does the patient have someone to accompany her when she leaves?
- What other medications does the patient take?
- Make sure the patient has at least 3 hours to remain in the clinic after the injection
- All of the above



Paliperidone palmitate (Invega Sustenna™, Invega Trinza™, Invega Hafyera™)

- Indication
 - Treatment of schizophrenia
 - Invega Sustenna™ is also indicated to treat schizoaffective disorder
- Pharmacokinetics
 - Time to peak:
 - Invega Sustenna™: 13 days
 - Invega Trinza™: 30 to 33 days
 - Invega Hafyera™: 29 to 32 days
 - Time to steady state:
 - Invega Sustenna™: 4 to 9 months
 - Invega Trinza™: 14 to 24 months
 - Invega Hafyera™: 24 to 27 months



Invega Sustenna (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2009
 Invega Trinza (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2015
 Invega Hafyera (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2021
 Invega LAI Portfolio. "Official Consumer Website | INVEGA™ (Paliperidone Palmitate) LAI Portfolio." July 27, 2020. <https://www.janssensschizophreniajections.com/>



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Paliperidone palmitate (Invega Sustenna™) dosing

LAI	Indication	Initial dose		Maintenance dose	Maximum dose	Dosing interval	Oral overlap
		Day 1	Day 8				
Invega Sustenna™	Schizophrenia	234 mg	156 mg	39 to 234 mg	234 mg	Monthly	None
	Schizoaffective disorder	234 mg	156 mg	78 to 234 mg	234 mg	Monthly	None



Invega Sustenna (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2009

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Paliperidone palmitate (Invega Trinza™) dosing

LAI	Invega Sustenna™ dose	Initial dose	Maintenance dose	Dosing interval	Oral overlap
Invega Trinza™*	78 mg	273 mg	Same as initial dose	Every 3 months	None
	117 mg	410 mg			
	156 mg	546 mg			
	234 mg	819 mg			

*Can start after patient is stable on Invega Sustenna™ for at least 4 months



Invega Trinza (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2015

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Paliperidone palmitate (Invega Hafyera™) dosing

LAI	Switching from...	Initial dose	Maintenance dose	Dosing interval	Oral overlap
Invega Hafyera™	Invega Sustenna™ ^(a)		Same as initial dose	Every 6 months	None
	156 mg	1092 mg			
	234 mg	1560 mg			
	Invega Trinza™ ^(b)		Same as initial dose	Every 6 months	None
	546 mg	1092 mg			
	819 mg	1560 mg			

a. Can start after patient is stable on Invega Sustenna™ for at least 4 months
 b. Can start after patient is stable on Invega Trinza™ for at least one 3 month cycle



Invega Hafyera (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2021

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Paliperidone palmitate (Invega Sustenna™) administration

- Intramuscular deltoid injection only for initiation dose
- Maintenance doses can be given in the deltoid or gluteal muscle
- Shake syringe for at least 10 seconds prior to injection



Invega Sustenna (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2009

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Paliperidone palmitate (Invega Trinza™) administration

- Intramuscular deltoid or gluteal muscle injection
- Shake syringe (with tip pointing upwards) for at least 15 seconds prior to administration
- Administer within 5 minutes of shaking



Invega Trinza (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2015

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Paliperidone palmitate (Invega Hafyera™) administration

- Intramuscular gluteal muscle injection only
- Shake syringe (with tip pointing upwards) very quickly for at least 15 seconds, rest briefly, then shake again for 15 seconds
 - Solution should look uniform, thick and milky white
- Administer within 5 minutes of shaking
- Inject over 30 seconds



Invega Hafyera (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2021

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Paliperidone palmitate (Invega Sustenna™) missed doses

Missed dose	Length of time since last injection	Dose to administer
Second initiation dose	<4 weeks	156 mg as soon as possible, followed by a third 117 mg dose 5 weeks after first dose
	4 to 7 weeks	Two doses of 156 mg one week apart
	>7 weeks	Restart recommended initiation dose
Maintenance dose	4-6 weeks	Administer regular maintenance dose as soon as possible
	6 weeks to six months	Administer regular maintenance dose twice one week apart
	>6 months	Restart recommended initiation dose



Invega Sustenna (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2009
Carpenter, Jasmine, and Kong K. Wong. *Current Psychiatry* 17, no. 7 (July 2018): 10–12, 14–19, 56.

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Paliperidone palmitate (Invega Trinza™) missed doses

Length of time since last dose	Previous dose	Dose to administer
3.5 to 4 months	273 mg to 819 mg	Administer previous dose as soon as possible
4-9 months	273 mg	Invega Sustenna™ 78 mg twice, one week apart, followed by 273 mg Invega Trinza™ one month after second Invega Sustenna™ Dose
	410 mg	Invega Sustenna™ 117 mg twice, one week apart, followed by 410 mg Invega Trinza™ one month after second Invega Sustenna™ Dose
	546 mg	Invega Sustenna™ 156 mg twice, one week apart, followed by 546 mg Invega Trinza™ one month after second Invega Sustenna™ Dose
>9 months	819 mg	Invega Sustenna™ 156 mg twice, one week apart followed by 819 mg Invega Trinza™ one month after second Invega Sustenna™ Dose
	273 mg to 819 mg	Re-initiate treatment with Invega Sustenna™ and reinitiate Invega Trinza™ after patient stable for 4 months



Invega Trinza (Paliperidone Palmitate). Package Insert. Janssen Pharmaceuticals, Inc; 2015
Carpenter, Jasmine, and Kong K. Wong. *Current Psychiatry* 17, no. 7 (July 2018): 10–12, 14–19, 56.

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Paliperidone palmitate (Invega Hafyera™) missed doses

Length of time since last dose	Previous dose	Dose to administer
6 months and 3 weeks to 8 months	1092 mg	Invega Sustenna™ 156 mg once, followed by Invega Hafyera 1092 mg one month later
	1560 mg	Invega Sustenna™ 234 mg once, followed by Invega Hafyera 1560 mg one month later
8 to 11 months	1092 mg	Invega Sustenna™ 156 mg twice, one week apart, followed by Invega Hafyera 1092 mg one month after second Invega Sustenna™ dose
	1560 mg	Invega Sustenna™ 156 mg twice, one week apart, followed by Invega Hafyera 1560 mg one month after second Invega Sustenna™ dose
>11 months	1092 mg 1560 mg	Re-initiate treatment with Invega Sustenna™ and reinstitute Invega Hafyera™ after patient stable for 4 months

Invega Hafyera (Paliperidone Palmitate), Package Insert. Janssen Pharmaceuticals, Inc. 2021
Carpenter, Jasmine, and Kong K. Wong. *Current Psychiatry* 17, no. 7 (July 2018): 10–12, 14–19, 56.



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Paliperidone palmitate (Invega Sustenna™, Invega Trinza™, Invega Hafyera™) safety

- Contraindications
 - Creatinine clearance < 50 mL/min
- Warnings
 - Can cause cerebrovascular events, including stroke, in elderly patients with dementia-related psychosis
- Major drug interactions
 - CYP3A4 inducers
 - CNS active medications
 - Medications that can cause orthostatic hypotension

Invega Sustenna (Paliperidone Palmitate), Package Insert. Janssen Pharmaceuticals, Inc. 2009
Invega Trinza (Paliperidone Palmitate), Package Insert. Janssen Pharmaceuticals, Inc. 2015
Invega Hafyera (Paliperidone Palmitate), Package Insert. Janssen Pharmaceuticals, Inc. 2021



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Paliperidone palmitate (Invega Sustenna™, Invega Trinza™, Invega Hafyera™) renal dose adjustments

CrCl (mL/min)	Invega Sustenna™	Invega Trinza™	Invega Hafyera™
>90 mL/min	No adjustment necessary	No adjustment necessary	No adjustment necessary
≥80 to 90 mL/min	No adjustment necessary	No adjustment necessary	Use not recommended
50 to 80 mL/min	Initiate with 156 mg on day 1, followed by 117 mg one week later Maintenance dose: 78 mg	Stabilize patient with Invega Sustenna™, then dose as previously reviewed	Use not recommended
<50 mL/min	Use not recommended	Use not recommended	Use not recommended

Invega Sustenna (Paliperidone Palmitate), Package Insert. Janssen Pharmaceuticals, Inc. 2009
Invega Trinza (Paliperidone Palmitate), Package Insert. Janssen Pharmaceuticals, Inc. 2015
Invega Hafyera (Paliperidone Palmitate), Package Insert. Janssen Pharmaceuticals, Inc. 2021

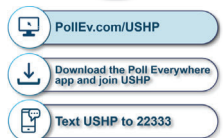


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Audience Response Question

Which of the following paliperidone formulations can only be administered in the gluteal muscle?

- Invega Hafyera™
- Invega Sustenna™
- Invega Trinza™



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Risperidone (Risperdal Consta™)

- Indication
 - Treatment of schizophrenia and bipolar 1 disorder
- Pharmacokinetics
 - Time to peak: 8 to 24 hours
 - Time to steady state: 15 to 30 days



Risperdal Consta (Risperidone). Package Insert. Ortho-McNeil-Janssen Pharmaceuticals, Inc; August 2010. Janssen CarePath. "Risperdal Consta - Overview," December 6, 2018. <https://www.janssencarepath.com/hcp/risperdal-consta>

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Risperidone (Risperdal Consta™) dosing

Indication	Initial dose	Maintenance dose	Maximum dose	Dosing interval	Oral overlap
Schizophrenia	25 mg	25 to 50 mg	50 mg	Every 2 weeks	3 weeks
Bipolar 1 disorder	25 mg	25 to 50 mg	50 mg	Every 2 weeks	3 weeks



Risperdal Consta (Risperidone). Package Insert. Ortho-McNeil-Janssen Pharmaceuticals, Inc; August 2010.

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Risperidone (Risperdal Consta™) administration

- Intramuscular deltoid or gluteal muscle injection
- Shake vial vigorously once diluent is added to suspend microspheres
- Administer within two minutes of shaking
 - Resuspend by shaking if necessary



Risperdal Consta (Risperidone). Package Insert. Ortho-McNeil-Janssen Pharmaceuticals, Inc; August 2010.

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Risperidone (Risperdal Consta™) missed doses

- Patient not at steady state and <2 weeks since last dose
 - Give next dose as soon as possible with 3 weeks of oral overlap
- Patient at steady state and ≤6 weeks since last dose
 - Give next dose as soon as possible with no oral overlap
- Patient at steady state and >6 weeks since last dose
 - Give next dose as soon as possible with 3 weeks of oral overlap



Carpenter, Jasmine, and Kong K. Wong. *Current Psychiatry* 17, no. 7 (July 2018): 10–12, 14–19, 56.

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Risperidone (Risperdal Consta™) safety

- Warnings
 - Can cause cerebrovascular events, including stroke, in elderly patients with dementia-related psychosis
- Major drug interactions
 - CYP3A4 inducers
 - CYP2D6 inhibitors



Risperdal Consta (Risperidone). Package Insert. Ortho-McNeil-Janssen Pharmaceuticals, Inc. August 2010.

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Audience Response Question

JD presents to your pharmacy distressed that he missed his last dose of his risperidone LAI. He received his last dose of Risperdal Consta™ five weeks ago, and has been consistently receiving injections for the past year. How would you reinitiate his LAI therapy?

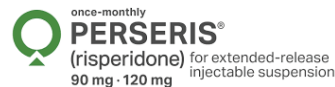
- Give next dose as soon as possible with three weeks of oral overlap
- Give next dose as soon as possible with no oral overlap
- Give next dose as soon as possible with six weeks of oral overlap



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Risperidone (Perseris™)

- Indication
 - Treatment of schizophrenia
- Pharmacokinetics
 - Time to peak: 4 to 6 hours to first peak, 10 to 14 days to second peak
 - Time to steady state: 45 to 55 days



Perseris (Risperidone). Package Insert. Indivior Inc. December 2019. Patient Information about PERSERIS® (Risperidone). Accessed February 6, 2022. <https://www.perseris.com/>

59

Risperidone (Perseris™) dosing

Oral risperidone dose	Initial dose	Maintenance dose	Dosing interval	Oral overlap
3 mg daily	90 mg	Same as initial dose	Monthly	None
4 mg daily	120 mg	Same as initial dose	Monthly	None



Perseris (Risperidone). Package Insert. Indivior Inc. December 2019

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Risperidone (Perseris™) administration

- Abdominal subcutaneous injection only
- Allow medication to come to room temperature prior to preparation

Perseris (Risperidone). Package Insert. Indivior Inc; December 2019



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Risperidone (Perseris™) missed doses

- Administer missed doses as soon as possible

Perseris (Risperidone). Package Insert. Indivior Inc; December 2019



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Risperidone (Perseris™) safety

- Major drug interactions
 - CYP3A4 inducers
 - CYP2D6 inhibitors

Perseris (Risperidone). Package Insert. Indivior Inc; December 2019



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Buprenorphine (Sublocade™)

- Indication
 - Treatment of moderate to severe opioid use disorder in patients who have initiated treatment with a buprenorphine-containing product, followed by dose adjustment for a minimum of 7 days
- Pharmacokinetics
 - Time to peak: 24 hours
 - Time to steady state: 4 to 6 months

Sublocade[®]
*(buprenorphine extended-release)
injection for subcutaneous use* ©
100mg•300mg

Sublocade (Buprenorphine Extended-Release). Package Insert. Indivior Inc; June 2021.
Patient Information for SUBLOCADE® (Buprenorphine Extended-Release) Injection, for Subcutaneous Use (CIII). * Accessed February 8, 2022. <https://www.sublocade.com/>



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Buprenorphine (Sublocade™) dosing

Transmucosal buprenorphine dose	Initial doses		Maintenance dose	Dosing interval	Oral overlap
	First dose	Second dose			
8 to 18 mg daily	300 mg	100 mg ^{a)}	100 mg	Monthly ^{b)}	None
20 to 24 mg daily	300 mg	300 mg	100 mg		

a) For patients still experiencing cravings or withdrawal symptoms, this dose can be increased to 300 mg

b) For patients taking 100 mg once monthly, there may be instances (such as extended-travel) that a single 300 mg dose may be given to cover a two month period



Sublocade (Buprenorphine Extended-Release). Package Insert. Indivior Inc; June 2021.

65

Buprenorphine (Sublocade™) administration

- Abdominal subcutaneous injection only
- Allow medication to come to room temperature before administration
- In the event the depot must be removed, it can be surgically removed under local anesthesia within 14 days of injection



Sublocade (Buprenorphine Extended-Release). Package Insert. Indivior Inc; June 2021.

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Buprenorphine (Sublocade™) missed doses

- Administer next dose as soon as possible
- Occasional delays in dosing up to 2 weeks are not expected to have a clinically significant impact on treatment effect



Sublocade (Buprenorphine Extended-Release). Package Insert. Indivior Inc; June 2021.

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Buprenorphine (Sublocade™) safety

- Warnings
 - REMS program for risk of serious harm or death if medication is administered intravenously
 - FDA REMS program is active, but currently on hold as of March 2020
 - Can only be supplied directly to a healthcare provider for administration by a healthcare provider
- Major drug interactions
 - Benzodiazepines
 - CYP3A4 inhibitors and inducers
 - HIV medications
 - Muscle relaxants
 - Serotonergic medications
 - Diuretics
 - Anticholinergic drugs
- Main side effects
 - Respiratory and CNS depression, neonatal opioid withdrawal syndrome, adrenal insufficiency, opioid withdrawal, hepatitis, jaundice, orthostatic hypotension, prolong QT interval, elevation of cerebrospinal fluid pressure



Sublocade (Buprenorphine Extended-Release). Package Insert. Indivior Inc; June 2021.

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Naltrexone (Vivitrol™)

- Indication
 - Treatment of alcohol dependence
 - Prevention of relapse to opioid dependence
- Pharmacokinetics
 - Time to peak: 2 hours to first peak, 2 to 3 days to second peak
 - Time to steady state: 25 to 50 days

Vivitrol[®]
(naltrexone for extended-release
injectable suspension)

Naltrexone (Vivitrol™) dosing

Initial dose	Maintenance dose	Dosing Interval	Oral overlap
380 mg	380 mg	Monthly	None

Vivitrol (Naltrexone for Extended-Release Injectable Suspension). Package Insert. Alkermes Inc; October 2010. ALK-VIV. "VIVITROL® (Naltrexone for Extended-Release Injectable Suspension)." Accessed February 8, 2022; <http://ssshare.it/2Q4b>.



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Vivitrol (Naltrexone for Extended-Release Injectable Suspension). Package Insert. Alkermes Inc; October 2010.

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Naltrexone (Vivitrol™) administration

- Intramuscular gluteal injection
- Allow medication to reach room temperature before administration

Naltrexone (Vivitrol™) missed doses

- Administer next dose as soon as possible

Vivitrol (Naltrexone for Extended-Release Injectable Suspension). Package Insert. Alkermes Inc; October 2010.



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Vivitrol (Naltrexone for Extended-Release Injectable Suspension). Package Insert. Alkermes Inc; October 2010.



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Naltrexone (Vivitrol™) safety

- Contraindications
 - Patients with hepatitis or liver failure
 - Patients taking opioid analgesics, or physiological opioid dependence
 - Patients in acute opioid withdrawal
- Warnings
 - Patients should be opioid free at time of dose initiation
- Major drug interactions
 - Opioid medications
- Main side effects
 - Hepatotoxicity, can precipitate opioid withdrawal or overdose, eosinophilic pneumonia, depression, suicidality

Vivitrol (Naltrexone for Extended-Release Injectable Suspension). Package Insert. Alkermes Inc; October 2010.



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Summary

Drug	Oral overlap	Administration	Notes
Haloperidol decanoate	Yes	Gluteal (Z-track)	Split dosing for >100 mg initial dose
Fluphenazine decanoate	Yes	Deltoid or gluteal (Z-track)	Not indicated for age <12
Aripiprazole monohydrate (Abilify Maintena™)	Yes	Deltoid or gluteal	Use vials for reduced doses
Aripiprazole lauroxil (Aristada™, Aristada Initio™)	Yes	Deltoid only for 441 mg Aristada™ Gluteal for all other doses	Aristada Initio™ reduces oral overlap to one does
Olanzapine pamoate (Zyprexa Relprevv™)	No	Gluteal	3 hours of monitoring post-injection
Paliperidone palmitate (Invega Sustenna™, Invega Trinza™, Invega Hafyera™)	No	Deltoid only for Invega Sustenna™ initiation dose Gluteal only for Invega Hafyera™ Deltoid or gluteal for all other doses	Renal dose adjustments
Risperidone (Risperdal Consta™)	Yes	Deltoid or gluteal	Indicated for schizophrenia and bipolar 1 disorder
Risperidone (Perseris™)	No	Abdomen	Subcutaneous injection
Buprenorphine (Sublocade™)	No	Abdomen	Subcutaneous injection Depot can be surgically removed within 14 days
Naltrexone (Vivitrol™)	No	Gluteal	Opioid antagonist



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Audience Response Question

Which of the following does not require an oral overlap?

- Aripiprazole monohydrate (Abilify Maintena™)
- Fluphenazine decanoate
- Risperidone (Risperdal Consta™)
- Olanzapine pamoate (Zyprexa Relprevv™)



- [PollEv.com/USHP](https://www.poll-ev.com/USHP)
- Download the Poll Everywhere app and join USHP
- Text USHP to 22333



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Audience Response Question

Which of the following LAI's is administered every three months?

- Aripiprazole monohydrate (Abilify Maintena™)
- Paliperidone palmitate (Invega Trinza™)
- Risperidone (Risperdal Consta™)
- Olanzapine pamoate (Zyprexa Relprevv™)



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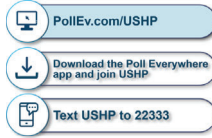


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Audience Response Question

Which of the following is true?

- a) LAI antipsychotics decrease time to first psychiatric hospitalization
- b) LAI antipsychotics increase time to first psychiatric hospitalization
- c) LAI antipsychotics are often inexpensive



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