

# METHADONE INDUCTION: INSTRUCTIONS TO PATIENTS AND SIGNIFICANT OTHERS

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## What is “induction?”

Methadone induction is simply the introduction or initiation of methadone therapy. The purpose of induction is to bring the dose of methadone to an adequate level to eliminate or greatly reduce drug hunger or craving and to prevent the onset of withdrawal sickness for more than 24 hours. The goal is to do this as quickly and as **safely** as possible.

If induction is too slow – persistent drug hunger leads to continued drug use. If induction is too fast - accumulation of methadone can lead to overdose.

## Phases of Methadone Dosing

PHASE	PURPOSE	RANGE IN MG / COMMENTS
Initial Dose	Relieve withdrawal symptoms	10-30 mg
Early Induction	Reach tolerance level	Increase dose <b>daily</b> until comfortable at 3-5 hours
Continued Induction to Early Maintenance	Adjust as needed to ensure <b>adequate</b> dose	Plus or minus 5-10 mg every 5-10 days
Maintenance	Maintain desired effects (steady-state occupation of opiate receptor sites)	Most pts: 60-120 mg - May be more or less. <b>No dose Ceiling (dose cap)</b>

## When is induction started? With the first dose of methadone

The first dose of methadone depends on having collected an initial urine for drug screen and proof of **existing/current physical dependence** to heroin or other morphine like drugs (opioids). Determination of physical dependence is based on “objective” or observable signs of withdrawal, such as dilated pupils, gooseflesh, etc. Objective is what we can see — Subjective is what the patient tells us.

The purpose of this requirement is to ensure that the new patient **is already** opioid dependent or addicted and therefore has some level of *tolerance* to methadone.

Induction continues until the patient has been comfortable on a stable dose for 3-5 days (steady-state).

## How does methadone work?

Methadone is like heroin **except** that:

1. It works when taken by mouth (no needles).
2. It has a slow (3-4 hours) onset to peak effect (no 'rush').
3. It is long acting drug (prevents onset of withdrawal for 24-36 hours in most patients).

As a result of a 24-36 hour **half-life** methadone, at **steady-state**, maintains a constant level of the drug at special cells in the brain called opioid receptors for 24 or more hours on a single dose given daily. This constant occupation of opioid receptors is achieved with an "adequate" dose of methadone, meaning a dose that prevents drug craving and withdrawal without producing sedation. [More on methadone later]

## How does induction work?

An initial dose of methadone is usually 30 mg but can vary from 10 mg to 30 mg. The initial dose is safe and usually less than the eventual maintenance dose. A **single** dose of 30 mg is usually safe, even for persons with little or no tolerance. The same dose of 30 mg given **daily** for 3 to 4 days can cause fatal overdose in non-tolerant individuals. It is important to note the response to a given dose, particularly when methadone blood levels are at their highest, which is 3-5 hours after the dose. Based on this response, the dose is adjusted up or down over several days to achieve the desired effects, which are:

1. Elimination of drug hunger/craving
2. Prevention of withdrawal sickness
3. Blocking the effects of heroin ("Blockade")

It helps to understand a bit of basic pharmacology (study of drugs). To understand induction and to participate in the induction process it is essential to understand **half-life** and **steady-state**.

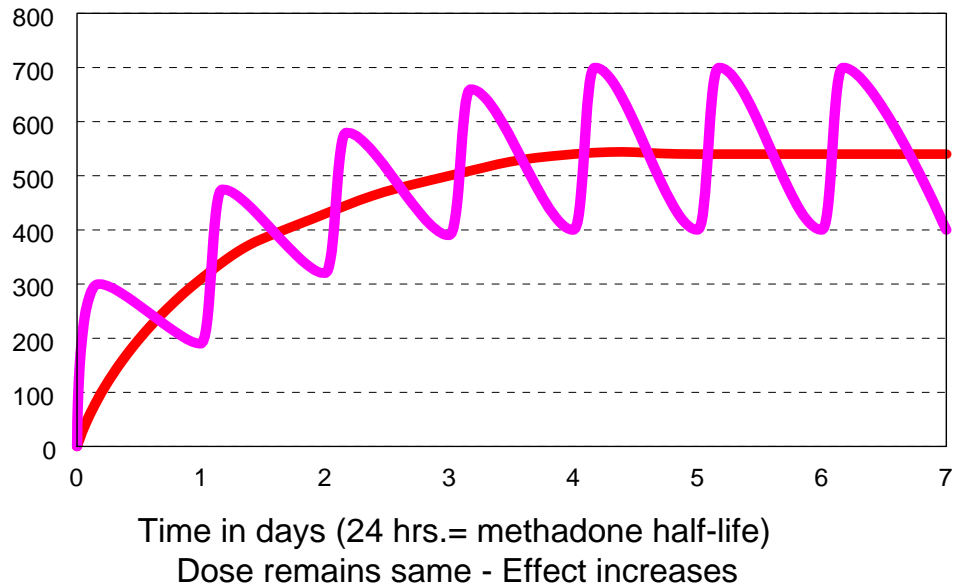
Half-life refers to the amount of time it takes the body to get rid of one half of a given dose. If 10 grams of a medication are taken and 5 grams are still in the body after 6 hours then the half-life of the medication is 6 hours. Methadone usually has a half-life of 24-36 hours.

During the induction phase the patient will be asked to provide information about their response to the previous dose at 3-5 hours, bedtime, and on awakening the following morning.

The graph below illustrates reaching steady-state (when blood level peaks remain constant on continued same dose) in 5 days (half-lives) or 5 doses of medication

### Steady State Simulation - Methadone Maintenance

Steady State attained after 4-5 half-lives - 1 dose every half-life



In the graph above the wavy line represents the blood levels of methadone as well as the “effect” it has on the individual patient.

### What have we learned from this lesson in pharmacology?

1. The peak effect/levels of methadone may more than double in 5 days, with ***NO increase in dose.***
2. During first few days if methadone is “not holding” beyond peak hours (3-5) it is likely that ***more time is needed, not more methadone.***
3. **Feeling even slightly high, loaded, or nodding today may mean overdose in 2-3 days (build-up)!! Even if dose is not increased.**

## Guidelines for patients during induction:

**When to increase:** Any degree of withdrawal up to moderate or severe physical withdrawal experienced 3-5 hours after the observed dose.

**When to hold:** Comfortable during from 3-5 hours after dose even if some degree of withdrawal occurs after 8 hours, (More time is needed, not more medication).

**When to reduce dose:** Any sensation of being sedated, high or loaded during peak hours, however mild. Remember the dose response / effect will be more pronounced after the next dose, assuming steady-state has not been reached.

## Guidelines for “Significant Others” (parents, spouses, friends)

1. During the induction phase the methadone patients should **never be sedated, nodding, or unsteady**. Disregard explanations such as “ I am supposed to feel this way because it takes a few days to “get used to it”.
2. **Any** use of alcohol, pills, or other drugs during induction is very dangerous and makes proper dose determination impossible.
3. At any time the patient is extremely ‘loaded’, difficult to arouse, can’t get up, not responding fully — get them to an emergency room by ambulance if necessary.
4. **NEVER let them “sleep it off”** Most overdose deaths (usually a mixture of drugs, alcohol, and methadone) occur during the night when someone has decided to let them sleep it off. They are found dead the following morning.
5. If patient is not breathing or breathing very slowly with a bluish color to skin, lips, and nail beds — **IMMEDIATELY CALL 911 AND START MOUTH TO MOUTH RESUSCITATION UNTIL EMS ARRIVES**. Inform medics that this may be a heroin or methadone overdose so they can give Narcan. Note: Any opiate overdose is the easiest thing in the world to treat — **IF** treated early. Narcan can reverse an overdose within minutes.

## **Daily Assessment During Induction**

Normally the daily assessment consists of the nurse looking at your pupils and general appearance. Also the nurse will ask a few questions to determine any signs/symptoms of over or under-medication at 3-5 hours after dosing (peak levels of methadone), at bedtime and on awakening.

The nurse will enter his or her findings on a routine assessment form that documents the assessment and dose changes, if any. The daily assessment will continue until the patient is comfortable and stable on the same dose for 3-5 days. This marks the beginning of the maintenance phase of treatment.

## **Death Penalty for Lying — or ... How to die in less than a week:**

1. Greatly exaggerate the size of your habit on admission and tell stories illustrating what a huge narcotic tolerance you have.
2. Don't tell a soul if you are getting high/loaded on your dose, as long as you are able to walk in the next day to tell us how your dose is not holding you.
3. Practice looking "sick" and reciting description of withdrawal signs and symptoms so you can get your dose increased.
4. If anybody finds you before you lose consciousness. Tell them that you were up all night and are just very tired and would they please go away to let you sleep it off, ...that it is normal to feel that way until you get used to the medicine.
5. R.I.P.

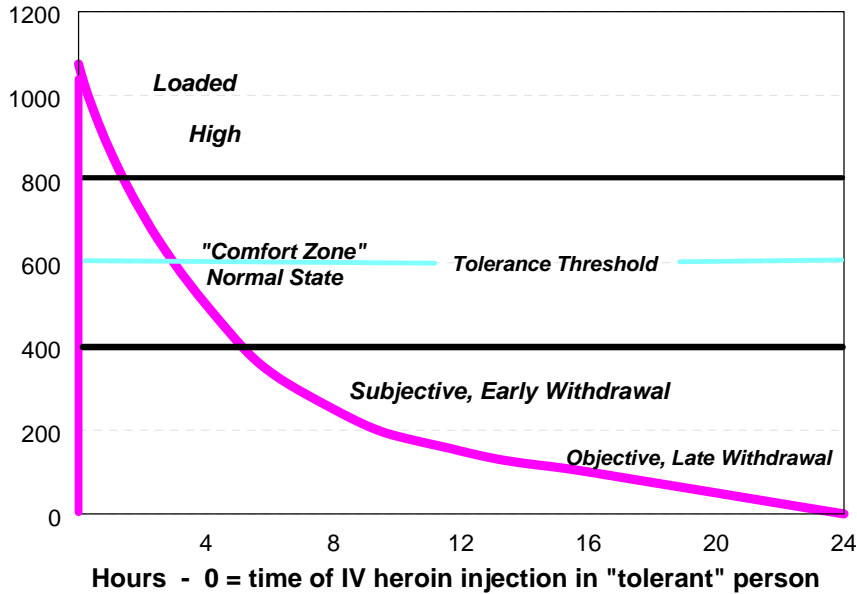
## **More on how methadone maintenance works ... Short acting drugs (heroin) VS Long acting drugs:**

The addicted patient comes with 3 basic states or conditions — High, Normal, and Sick. Heroin addiction usually involves all 3 states on a daily basis, as will any short acting opioid. The graph below illustrates a heroin addicted person who has an established tolerance threshold. This means that both tolerance and physical dependence exist.

While sick (a blood level of 0) an injection of heroin is taken. There is an immediate 'high' which may last 1-2 hours followed by a return to a brief period of being normal (as they pass through the "comfort zone") then early symptoms of withdrawal which gradually get worse unless another injection is taken, leading eventually to full blown physical withdrawal.

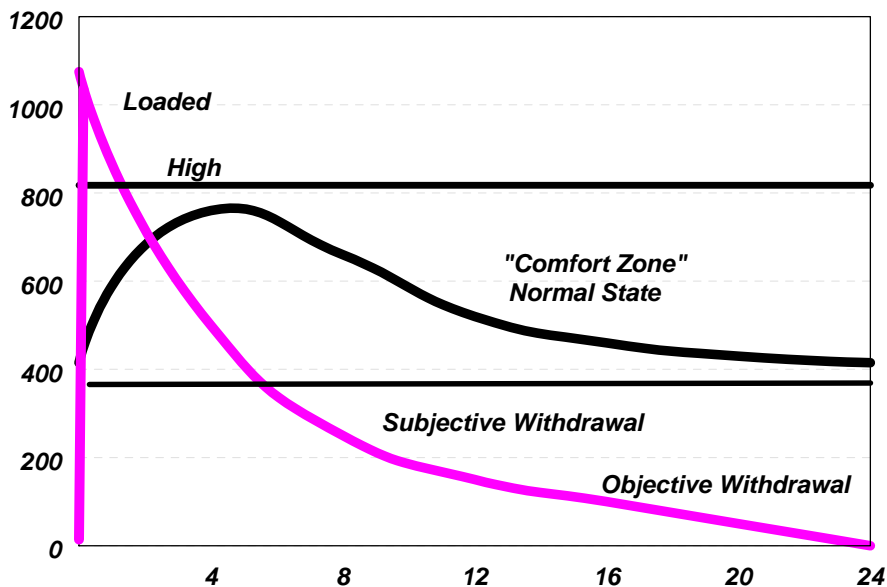
Thus the life of the person addicted to heroin is like a roller-coaster with wide swings from high to normal to sick to high to normal to sick.

## 24 hour dose-response to heroin



The following graph has superimposed the 24 hour methadone curve showing an established methadone maintenance patient receiving the normal dose at 0 hours, at which time the blood or effect levels are still within the comfort zone from the previous dose. There is no high and no sick, allowing patient to function in a normal state for the entire 24 hour period.

## Methadone VS Heroin



What you see that the methadone maintained patient avoids the highs, lows and wide swings of the active heroin addict.

This is how it works.

J.T.P.