

OXYTOCIN

Bond · Trust · Heal · Thrive

The 'love hormone' — the endogenous nonapeptide governing human connection, healing, and social wellbeing.

9

Amino Acids

FDA

Approved OB/GYN

~3min

Plasma Half-life

Intranasal

CNS Route

What is Oxytocin?

The endogenous nonapeptide that underlies human bonding, trust, and healing

Oxytocin is a cyclic nonapeptide produced in the paraventricular and supraoptic nuclei of the hypothalamus, released from the posterior pituitary into the bloodstream and directly into the brain via magnocellular and parvocellular pathways.

Popularly known as the 'love hormone' or 'bonding hormone', oxytocin's neurobiological role extends far beyond reproduction: it modulates social recognition, trust formation, fear extinction, wound healing, inflammation, and gut motility.

The peptide earned its therapeutic legacy in obstetrics — FDA-approved Pitocin has been used for decades to induce labour and prevent postpartum haemorrhage. Research has since revealed a vastly broader pharmacological profile.

Intranasal oxytocin bypasses the blood-brain barrier via olfactory and trigeminal nerve pathways, producing measurable central effects on social behaviour, anxiety, and stress response within minutes.

CYCLIC NONAPEPTIDE SEQUENCE

Cys-Tyr-Ile-Gln-Asn-Cys-Pro-Leu-Gly-NH₂

MW: 1007.19 g/mol | Formula: C₄₃H₆₆N₁₂O₁₂S₂ | Disulfide bridge: Cys1-Cys6

Brain Regions Modulated by Oxytocin

Amygdala

Fear reduction

Hippocampus

Social memory

PFC

Trust & empathy

Hypothalamus

Bonding & HPA

Striatum

Reward circuitry

Quick Facts

Class Cyclic nonapeptide

Origin Hypothalamus

FDA Status Approved (Pitocin)

Routes IV · SC · Intranasal

Half-life ~3 min (IV plasma)

CNS access Intranasal

OXT

Key Benefits

Evidence-based benefits spanning social, psychological, and physical health

Anxiety & Stress Reduction

Intranasal oxytocin reliably reduces cortisol response to stress, attenuates amygdala hyperactivity, and produces measurable anxiolytic effects in clinical settings — without sedation or dependence.

Social Bonding & Trust

Oxytocin enhances trust, in-group bonding, and social recognition. Multiple RCTs demonstrate improved social cognition, increased generosity, and enhanced emotional face recognition following intranasal dosing.

Wound Healing

Oxytocin receptors on fibroblasts and keratinocytes mediate direct tissue repair effects. Animal and human studies show accelerated wound closure, reduced inflammatory cytokines, and improved tissue regeneration.

Labour & Obstetric Use

FDA-approved Pitocin (synthetic oxytocin) is the most widely administered drug in US hospitals — used for labour induction, augmentation, and postpartum haemorrhage prevention with an unmatched safety record.

Gut-Brain Axis

Oxytocin receptors throughout the enteric nervous system regulate gut motility, intestinal permeability, and the microbiome-brain signalling axis. Research supports roles in IBS, IBD, and appetite regulation.

Depression & PTSD

Emerging clinical data shows intranasal oxytocin reduces PTSD symptom severity, improves therapeutic alliance in psychotherapy, and augments antidepressant response — particularly in social anhedonia subtypes.

Oxytocin vs. Benzodiazepines vs. SSRIs (social anxiety / stress)



Research & Dosing

Decades of clinical evidence spanning obstetrics, neuroscience, and psychiatry

19
06

1906

English physiologists first described uterotonic activity in posterior pituitary extracts. The isolated factor was later named 'oxytocin' from Greek — 'swift birth' — by Vincent du Vigneaud.

19
53

1953 Nobel Prize — First Synthesised

Vincent du Vigneaud synthesised oxytocin as the first polypeptide hormone ever produced — earning the 1955 Nobel Prize in Chemistry. FDA-approved Pitocin followed shortly after.

19
94

1994 Social Bonding Mechanisms

Landmark animal studies with prairie voles established oxytocin as the molecular basis for pair bonding, maternal behaviour, and affiliative social interaction — creating the modern 'love hormone' paradigm.

20
05

2005

Kosfeld et al. published the landmark Nature paper demonstrating intranasal oxytocin increased trust in economic games — opening the field of human social neuroscience and intranasal delivery research.

20
12

2012 Wound Healing & Inflammation

Systematic characterisation of peripheral oxytocin receptors on fibroblasts, immune cells, and gut epithelium established oxytocin's role in tissue repair, anti-inflammation, and the gut-brain axis.

20
20

2020 PTSD & Psychiatric Applications

Meta-analyses of intranasal oxytocin RCTs confirmed significant effects on social anxiety, PTSD symptom clusters, and therapeutic outcome in psychotherapy — establishing active clinical development programmes.

Dosing Overview

Route	Intranasal · IV · SC	IV (Pitocin)	Clinical obstetric use	Timing	30 min before social context
Intranasal dose	10–40 IU per session	Research dosing	20–40 IU intranasal	Cycle	As-needed / acute use
Onset IN	3–5 minutes	Duration	~30 min central	Storage	2–8°C refrigerated

For research use only. Intranasal oxytocin is investigational. Pitocin is FDA-approved for obstetric use only. Physician supervision required.

The Chemistry of Human Connection

Oxytocin is not a drug — it is the molecule your body evolved to produce when you feel safe, connected, and loved. Research is only now uncovering the breadth of what this ancient nonapeptide quietly orchestrates.



BOND
attachment & empathy
Social trust,

HEAL
anti-inflammation
Wound repair,

CALM
& stress resilience
Anxiety reduction

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Always consult a licensed healthcare professional before beginning any peptide protocol.