mricell™

NATURAL POLYAMINES FROM RICE

Nutraland

www.nutralandusa.com

POLYAMINES & SPERMIDINE

Polyamines (PAs) are organic compound having two or more amino groups.

Spermidine (SPD), along with **Putrescine** (PUT) & **Spermine** (SPM), are the main Polyamines in mammalian cells and plants and play an important role in cell growth/health.

Though it was originally isolated from semen, Spermidine is the main Polyamine found in plants.

THE STORY

POLYAMINES & LONGEVITY

A study published in 2012 revealed an interesting finding:

Spermine & Spermidine concentration in the age group of 90–106 years-old are found at the same level of those in their 30's.

This may indicate an important correlation between Polyamines levels and longevity.

THE STORY

POLYAMINES & SPERMIDINE IN FOOD

Fruits & Vegetables
Apple, Avocado, Banana, Broccoli, Cauliflower, Orange

Meat
Beef, Chicken

Legumes & Soybean products
Chickpea, Lentil, Soybean, Tofu

Fish & Seafood
Cod, Salmon, Shirmp

Nuts
Almonds, Chestnuts, Pistachios

Dairy products
Milk, Yogurt

Cereals & Mushrooms
Rice, Wheat, Shitake

Aged Cheese
Cheddar, Brie

THE STORY

HEALTH BENEFITS

Polyamines (PAs) play multiple roles in cell growth, survival and proliferation. Changes in polyamine levels have been associated with aging.

There are extensive studies on the physiological functions of polyamines (Spermidine, Putrescine & Spermine) and their importance for cellular health.

"Dietary supplementation of spermidine prolongs life span and health span by protecting from a range of age-associated pathologies in several animal models."

Science 26 Jan 2018
Spermidine in health and disease
https://pubmed.ncbi.nlm.nih.gov/29371440/

THE SCIENCE

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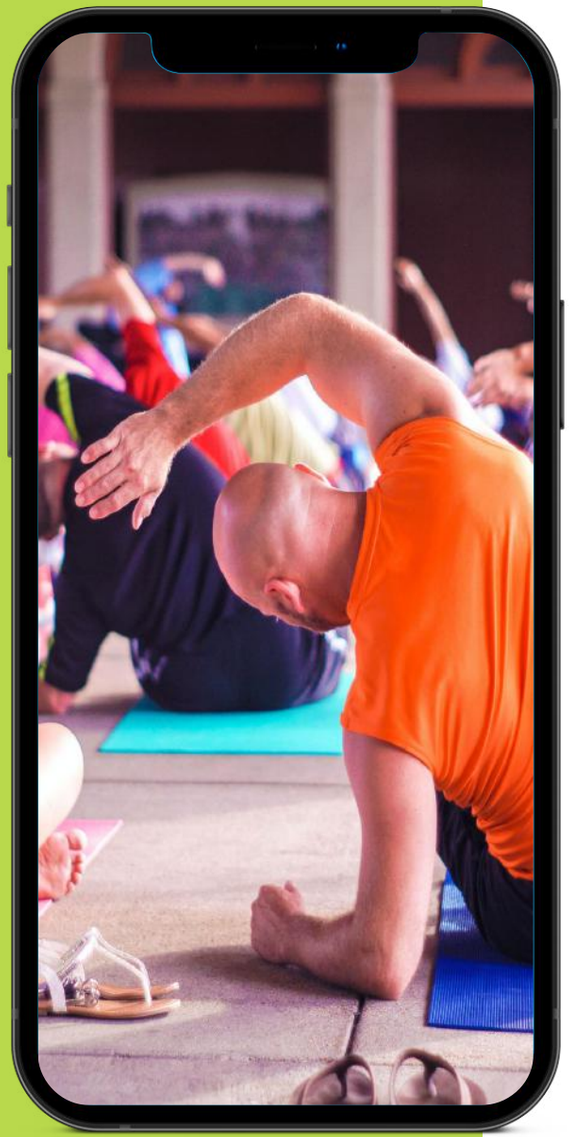
HEALTH BENEFITS



Healthy Aging

Spermidine delays aging in humans

https://www.ncbi.nlm.nih.gov/pubmed/30082504

Spermidine in health and disease

https://www.ncbi.nlm.nih.gov/pubmed/29371440

induction of autophagy by spermidine promotes longevity

https://pubmed.ncbi.nlm.nih.gov/19801973/

Spermidine: a physiological autophagy inducer acting as an anti-aging vitamin in humans?

https://www.ncbi.nlm.nih.gov/pubmed/30306826

Molecular Basis of the 'Anti-Aging' Effect of Spermidine and Other Natural Polyamines – A Mini-Review

https://www.karger.com/Article/Pdf/356748

THE SCIENCE

HEALTH BENEFITS

Immunity Support

Role of Polyamines in Immune Cell Functions
https://www.ncbi.nlm.nih.gov/pubmed/29517999

Polyamines reverse immune senescence via the translational control of autophagy
https://pubmed.ncbi.nlm.nih.gov/31679458/

Polyamines and Kynurenines at the Intersection of Immune Modulation
https://www.cell.com/trends/immunology/fulltext/S1471-4906(20)30214-3

Polyamines play a critical role in the control of the innate immune response in the mouse central nervous system
https://www.ncbi.nlm.nih.gov/pubmed/12860970

Regulating T-cell differentiation through the polyamine spermidine
https://pubmed.ncbi.nlm.nih.gov/32407834/

THE SCIENCE

HEALTH BENEFITS

Neuroprotection

Spermidine protects against α-synuclein neurotoxicity
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4614020/

Polyamines and central nervous system injury: spermine and spermidine decrease following transient focal cerebral ischemia in spontaneously hypertensive rats
https://pubmed.ncbi.nlm.nih.gov/12031538/

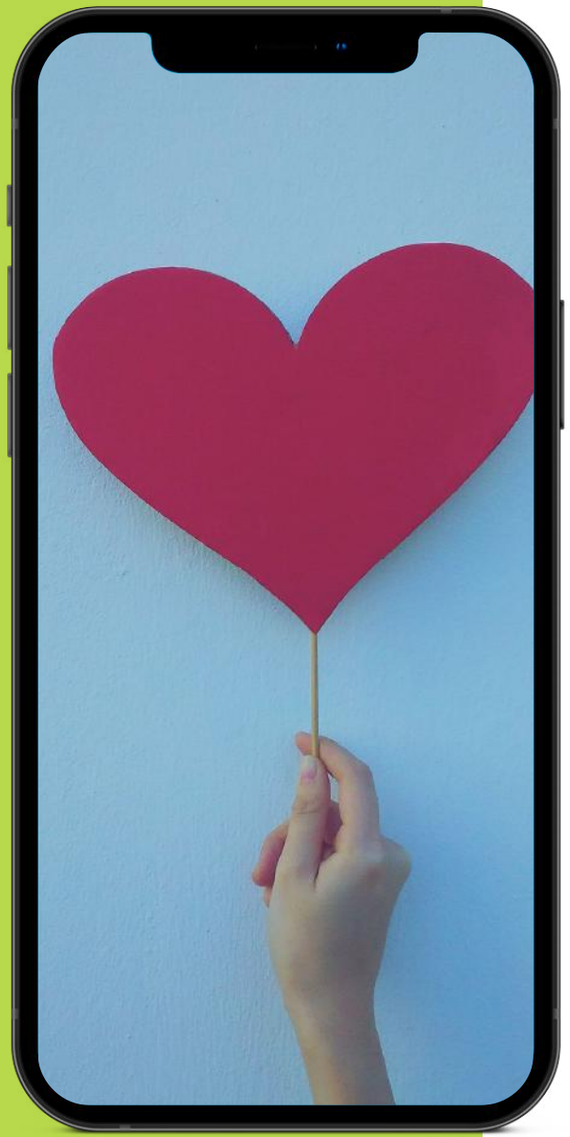
Spermidine prevents high glucose-induced senescence in HT-22 cells by upregulation of CB1 receptor
https://pubmed.ncbi.nlm.nih.gov/29699000/

Spermidine preconditioning ameliorates laurate-induced brain injury by maintaining mitochondrial stability
https://pubmed.ncbi.nlm.nih.gov/28112032/

Polyamines in the brain: distribution, biological interactions, and their potential therapeutic role in brain ischaemia
https://pubmed.ncbi.nlm.nih.gov/17627518/

THE SCIENCE

HEALTH BENEFITS



Cardioprotection

Spermidine to the rescue for an aging heart
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5853099/

Cardioprotection and lifespan extension by the natural polyamine spermidine
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5806691/

Spermidine-enhanced autophagic flux improves cardiac dysfunction following myocardial infarction by targeting the AMPK/mTOR signalling pathway
https://pubmed.ncbi.nlm.nih.gov/31077347/

Spermidine Prevents Heart Injury in Neonatal Rats Exposed to Intrauterine Hypoxia by Inhibiting Oxidative Stress and Mitochondrial Fragmentation
https://pubmed.ncbi.nlm.nih.gov/31217839/

THE SCIENCE

HEALTH BENEFITS

Fertility Health

Polyamines on the reproductive landscape
https://pubmed.ncbi.nlm.nih.gov/21791568/

Spermidine induces cytoprotective autophagy of female germline stem cells in vitro and ameliorates aging caused by oxidative stress through upregulated sequestosome-1/p62 expression
https://pubmed.ncbi.nlm.nih.gov/34099041/

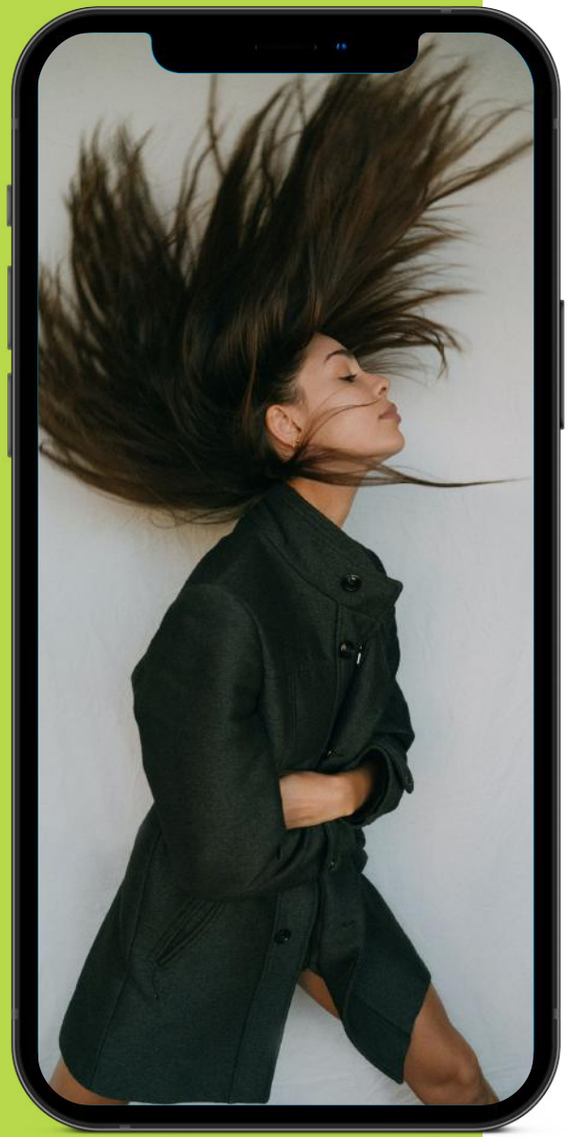
Spermidine promotes mating and fertilization efficiency in model organisms
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3575463/

Spermine synthesis is required for normal viability, growth, and fertility in the mouse
https://pubmed.ncbi.nlm.nih.gov/15459188/

The protective role of spermine against male reproductive aberrations induced by exposure to electromagnetic field - An experimental investigation in the rat
https://pubmed.ncbi.nlm.nih.gov/30878504/

THE SCIENCE

HEALTH BENEFITS



Skin & Hair Health

Spermidine-induced recovery of human dermal structure and barrier function by skin microbiome

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7895926/

Systemic and topical administration of spermidine accelerates skin wound healing

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7986284/

Polyamines and hair: a couple in search of perfection

https://onlinelibrary.wiley.com/doi/full/10.1111/j.1600-0625.2010.01111.x

Spermidine promotes human hair growth and is a novel modulator of human epithelial stem cell functions

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3144892/

A spermidine-based nutritional supplement prolongs the anagen phase of hair follicles in humans: a randomized, placebo-controlled, double-blind study

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5718121/

THE SCIENCE

POLYAMINES & SPERMIDINE IN SUPPLEMENTS COMES FROM 3 SOURES

synthetic

rice

wheat

SUPPLEMENT OPITONS

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...AND THEY ARE NOT CREATED EQUAL

synthetic

Unnatural trihydrochloride
Made with harsh chemicals
Impurities/Safety unknown

rice

Natural & Hypoallergenic
Non-GMO & Gluten Free
Contains other natural Polyamines

wheat

1 of the 9 Major Allergens
May cause Wheat allergy
May contain Gluten

SUPPLEMENT OPITONS

Why not "pure" Spermidine?

1. So-called "Pure" Spermidine is commercially available only in the unnatural **Trihydrochloride** form, with impurities and safety unknown.

2. There is no sufficient safety studies and health benefits studies done with "pure" Spermidine.

3. Polyamines (Putrescine, Spermidine & Spermine), not just Spermidine, are consumed in food and have shown health benefits in numerous studies.

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SUPPLEMENT OPITONS

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WHY & HOW WE CREAT IT FROM RICE

米

mi

(Chinese character for **rice**)

THE CREATION

miricell™

WHAT IS IT

Natural Polyamines from rice
Standardized to 1% Spermidine
Rich in other PAs and nutrients

THE CREATION

Natural Naturally and gently extracted from Rice

Non-GMO Made with Non-GMO Rice Germs only

Allergen-Free Allergen-Free & Gluten-Free

Vegan-Friendly Vegan & Vegetarian

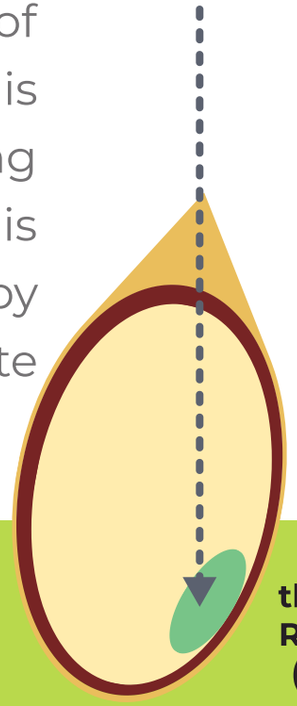
Sustainable Eco-friendly & sustainably made

Complete Rich in Spermidine & Polyamines

miricell™

SOURCE

Rice Embryo (Rice Germ), which is full of nutrients (and rich in Polyamines), is one of the "modern" Rice Milling byproducts when Brown Rice is processed into White Rice. Such by products are usually disposed as waste or used for feed purpose.



this tiny little Rice Embryo (Rice Germ)

Miricell™ is made from the usually wasted Rice Germ in rice milling, to not only transform it into a nutraceutical ingredient with great health benefits, but also respect and fully use the resources gifted by nature for a sustainable future.

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THE CREATION

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miricell™

MAKING

1

Nutrient-packed
Non-GMO
Rice Germs

2

Gently extracted
to achieve maximum
Polyamines/Spermidine
while keeping other
nutrients in rice germs

3

3rd Party verified
Assay(s)
Heavy Metals
Allergens
Contaminants

4

Miricell™
Natural Polyamines from rice
a clean-label ingredient

THE CREATION

miricell™

Miricell™ is not only standardized to min. 1% Spermidine, but also rich in health-beneficial Polyamines such as Putrescine & Spermine

"THREE MUSKETEERS"

- Main PAs in mammalian cells and plants

Putrescine

PUT

Spermidine

SPD

Spermine

SPM

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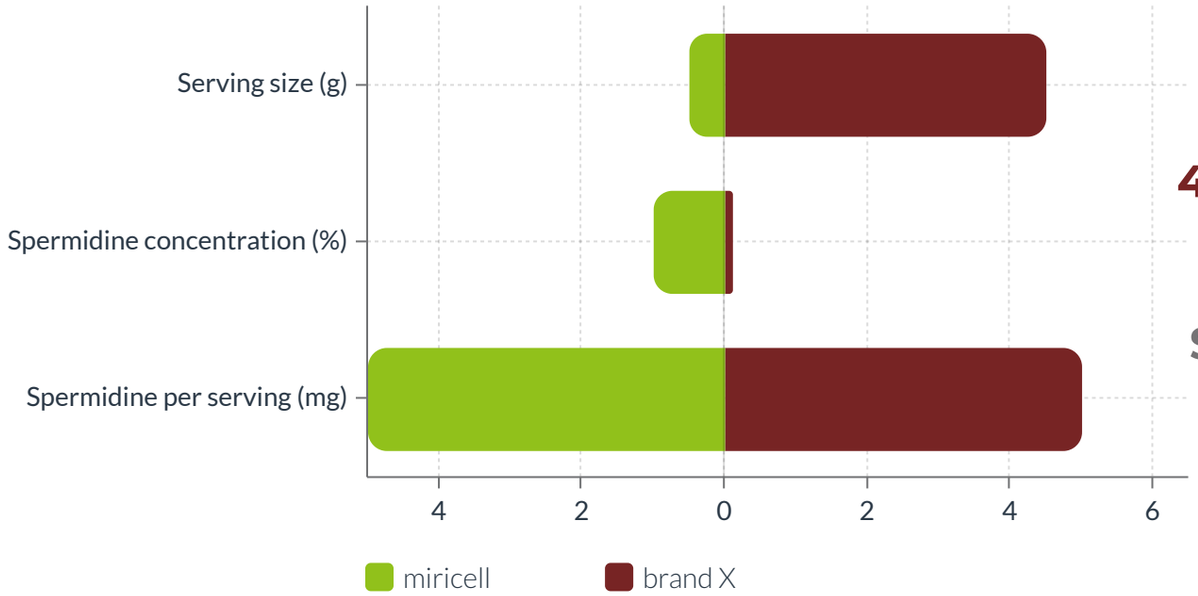
THE CREATION

miricell™

STRENGTH

Miricell™ is about 10 times more concentrated than some other Spermidine ingredients in the market

500mg Miricell™
=
5mg/Day
Spermidine dose



4,500mg Brand X
=
5mg/Day
Spermidine dose

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THE CREATION

miricell™

VALIDATION

Miricell™ has been extensively tested for validation of assay & non-Allergen claims

Analysis:	Method:	Result:	Spec:
Spermidine (HPLC)	SOP3.1.2	1.17 % (d.b.)	≥ 1 %
Loss on Drying (LOD)	USP<731>	3.98 %	N/A

Parameter	Result
Gluten Allergen (ELISA) - Wheat, Rye, & Barley	<3.0 ppm

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THE CREATION

THE CHOICE IS CLEAR

mericell™

NATURAL POLYAMINES FROM RICE

THANK YOU

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sales@nutralandusa.com