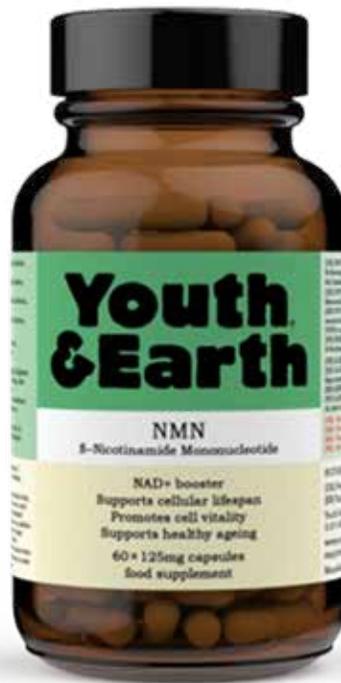




Youth & Earth

www.youthandearth.com



Company profile

Youth & Earth



Youth & Earth provides all-natural plant-based anti-aging supplements, which combine cutting-edge scientific know-how with age-old wisdom. With this combination, Youth & Earth's main objective is to provide evidence-based supplements that slow down aging at a cellular level and target the lifelong accumulation of molecular and cellular damage.

Youth & Earth aim to create supplements that essentially “top up” the molecules that deplete as we age, to help make bodies operate and feel like well-oiled machines again. With the progression of science in recent years, Youth & Earth believe that maintaining our peak physical health is more achievable now than ever. However, there is a caveat: Youth & Earth consider many supplements on the market to be ineffective due to low oral bioavailability. To combat this, Youth & Earth have focused their efforts on producing high-quality raw materials and delivery mechanisms that will ensure the maximum absorption of the nutrient.

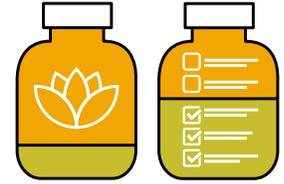
Youth & Earth was started by British entrepreneur Ed van Harmelen. Ed has lived in nine countries and travelled extensively in a further 85, becoming fascinated by traditional approaches to ageing. He started researching a wide range of remedies from Ayurveda to traditional Chinese and Japanese medicines back in the early 2000s.

Several years ago, Ed became physically run down and it started to affect his career. He realised that he needed to take charge of his health and took an at-home blood test kit. He was shocked at the results and started to focus on ‘bio-hacking’ his health and actively monitoring his improvement. He came across the principle of longevity pathways back in 2017 and has since carried on researching

into related topics such as the Hallmarks of Aging and supplements that address the factors that influence the decline that traditionally comes with growing older. He realised that there was a gap in the UK and European market for supplements that address ageing at a cellular level and that's how Youth & Earth was born.

“If people want to look at ageing as a disease then we have the cure,” says Ed. “The science – and art – of anti-aging is a lot like playing a piano. To create a uniquely beautiful melody, you would not play just one key. You would include a wide range of notes. In the same way, when altering your lifestyle to target ageing and creating an anti-aging regime, it's important to target lots of different areas at once so you're fighting more than just one Hallmark of Aging at a time.”

Youth & Earth stocks an extensive range of products to target the hallmarks of aging. This includes NAD+ boosters, such as powdered NMN and NR, to tackle genomic instability, liposomal fisetin and quercetin to tackle cellular senescence, liposomal glutathione to maintain stem cell function and high-quality krill oil to reduce inflammation caused by deregulated cellular communication. Two of their products are proprietary blends of key polyphenols and flavonoids that have been suggested to regulate epigenome and deregulated nutrient sensing. Preserage contains resveratrol, curcumin and quercetin and Releaf is made up of berberine, silymarin and PQQ. Youth & Earth is now one of the largest suppliers of NMN in the UK & Europe. Their extensive range of liposomal products was produced to support the bioavailability of the carefully selected ingredients and Ed believes that this method is “the next best thing to IV therapy”.



Youth & Earth have a distribution agreement with the largest UK health food distributor in the UK and its products can now be found in major stores in the UK such as Planet Organic (the UK's largest organic supermarket), John Bell & Croyden (Pharmacists to Her Majesty Queen Elizabeth II), and Revital (the largest independent health store in the UK).

Youth & Earth are the first brand in the UK to penetrate the supplement retail market with products solely focused on longevity. The company has played a key role in getting established retailers to acknowledge the science and the potential of longevity supplements. All products are manufactured in ISO-22000 accredited facilities to HCAAP and GMP standards and tested for purity by the UK's leading food laboratory (Campden BRI) to ensure they are toxin-free, engineered for optimal absorption and bioavailability and, where possible, natural and plant-based.

NMN Sublingual Powder for Longevity: Target Hallmarks of Aging

Evidence for all hallmarks, but particularly; Genomic instability, Mitochondrial dysfunction, Cellular senescence, Telomere attrition.

NMN is a direct and potent NAD⁺ supplement. As we age NAD⁺ levels naturally decline, so taking an NAD⁺ precursor like NMN could elevate levels of NAD⁺. NAD⁺ can bind to a protein called DCB1, which stops this protein inhibiting the action of another critical DNA repair protein called PARP1. Reduction in NAD⁺ causes mitochondrial dysfunction, and therefore supplementing with NMN promotes the health of the cells' powerhouse by enhancing NAD⁺ levels. Increased NAD⁺ levels also stimulate SIRTUIN activity, the longevity-genes shown to be active during caloric restriction and life-extension in many animal models.





Flagship product Deep-Dive

NMN Sublingual Powder: Product description

Nicotinamide Mononucleotide (NMN) boosts NAD⁺, which is the natural fuel every cell relies on to keep functioning like a well-oiled machine. It is a critical co-enzyme found in every cell in your body that is involved in hundreds of metabolic processes like cellular energy and mitochondrial health. But our NAD⁺ levels drop as much as 50% by the time we are 50, and by time we are 60 they have fallen off a cliff, making it harder for our body to produce the energy we need to maintain great health. Low NAD⁺ levels have high correlation to many age-related diseases and age-related decline. Supplementing with NMN directly increases the levels of NAD⁺ in your body, counteracting the natural decline that occurs in physical condition, mental cognition and resistance to infection.

Youth & Earth offer NMN as a sublingual powder, or in gastro-resistant capsules, to avoid degradation by stomach acid and first-pass effect from the liver. When taking NMN sublingually, the ingredient is absorbed across the mucous membranes (under the tongue) and passes directly into the bloodstream. From there it travels straight to the brain and other organs, bypassing the “first pass effect” from the liver. It is for this reason, Youth & Earth believes taking sublingual NMN, or in a gastric-resistant capsule, is the most effective and efficient way of supplementing for NAD⁺.

NMN Sublingual Powder: Preclinical and Clinical Studies

Although Youth & Earth have not undergone any preclinical or clinical trials, its product ingredients are based on scientific evidence of lifespan enhancement in model organisms and the company maintains a “Blue Zones-focused” mandate. Blue Zones are geographical areas home to a disproportionate number of centenarians. The company states it only sells products that are rooted in years of rigorous research.

What differentiates Youth & Earth from other longevity supplements is their emphasis on choosing the correct delivery systems to ensure bioavailability of their ingredients. For NMN, Youth & Earth chose a sublingual powder for superior bioavailability, as NMN is released directly into the blood vessels under the tongue. It also offers a delayed-release capsule that is gastro-resistant and prevents the NMN from being destroyed by the gastric system. Youth & Earth believes that liposomal NMN has the potential to have the greatest impact in the long term, but currently, NMN in liposomal liquid or gel form is likely to be ineffective as NMN degrades in water and is unstable.

David Sinclair once commented in a podcast that NMN can degrade at high temperatures. To ensure its NMN would not degrade in hot summers in the northern hemisphere, Youth & Earth placed NMN samples in aluminium bags and subjected them to 40°C and 75% relative humidity over 3 months. The worse performing sample at the 3-month mark was still at 98.82% pure.

Youth & Earth believes that believes in quality and as such conducts third-party testing, in a UK leading food laboratory, to ensure 99% pharmaceutical grade NMN product. Youth & Earth states that one of the issues with other suppliers of NMN is that they use filler and stimulants to bulk up their products. In-house testing by the company revealed that only 10% of a food-grade NMN sample was NMN. To reassure the customer of the quality of its ingredients, Youth & Earth offers third-party lab reports for each of its products.

Youth & Earth do not disclose who manufactures its liposomal products, but states that they regularly publish human studies showing the effectiveness and bioavailability of their liposomal manufacturing technology compared against standard supplements and other liposomal manufacturing technologies. For example, a curcumin study demonstrated that, in 20 randomly assigned individuals, liposomal curcumin vs standard curcumin was 46 times more bioavailable.



NMN Sublingual Powder: ingredients and dosage

Ingredient	Description
NMN (β-Nicotinamide Mononucleotide) – one level scoop holds 200-250mg	NMN occurs naturally in food such as avocado, broccoli, cabbage, and tomatoes. However, to get about 1mg of NMN, you would have to eat about 1kg of broccoli. NMN elevates NAD+ levels in cells throughout the body to boost energy supply to aging cells, reactivate blood flow and protect from age-related metabolic diseases.

NMN Sublingual Powder: Safety and Risks

Dosages of 100, 250, and 500 mg NMN did not cause any significant clinical symptoms or changes in main biomarkers like heart rate, blood pressure, oxygen saturation and body temperature in a human clinical trial. The trial helped to support that, in general, NMN is safe and well-tolerated.

Youth & Earth is confident that all ingredients have been accredited or self-affirmed as GRAS.

Youth & Earth mandate that life is all about experiences, and there is no reason the second half our lives cannot be just as rich as the first half. As such, the company endorses evidence-based ingredients and innovative delivery methods that focus on optimising absorption of the key nutrients, encouraging customers to come back time and time again to their products.

NMN Sublingual Powder: Target Market

Youth & Earth products are plant based and designed to target the hallmarks of aging. The company aims to make these products more accessible to customers who are interested in taking ownership of their long-term health by increasing lifespan and healthspan, by avoiding illness as they age while maintaining cognitive health so they can enjoy more quality years with their families and loved one. Youth & Earth believes that in the next ten years, workers aged 65+ will be responsible for a larger proportion of the workforce than they are today, and as longer life expectancy bolsters market growth it will be more important than ever to ensure you are at optimum health.



Success Factors

Team and reputation

- Founded by Ed van Harmelen in 2019, the team for Youth and Earth is still relatively small and new. Their skills, and Ed Van Harmelen's background in finance, have helped Youth and Earth successfully penetrate the UK market through several different channels. Future funding into the company could support further expansion of the team and their market;
- Youth & Earth have signed with the largest health food distributor in the UK and a large distributor in Austria. They are now stocked in stores such as Planet Organic, the largest organic supermarket in the UK, John Bell and Croyden (Pharmacists to Her Majesty Queen Elizabeth II) and Revital, the UK's leading independent health store;
- Youth & Earth were recently featured in the beauty/wellness section of Country and Town Great British Brands of 2021 alongside brands such as Rolls Royce, Aston Martin, Bentley and Harrods;
- Youth and Earth has also been granted four awards from the beautshortlist.com including, best healthy ageing supplement (Liposomal Gluathione Capsules), best longevity & DNA repair (NMN Sublingual Powder), Wellbeing editors' choice (Liposomal Hyaluronic Acid) and best longevity, cell health and antioxidant protection (Preservage);
- The company is understood to have several existing working partnerships and has stated it is interested in working with new strategic partners.

Intellectual property

- Youth & Earth has a large longevity-focused product range, and is looking to extend further, with several new supplements in the pipeline;
- Although the ingredients within the range are not patented, which could imply a high risk of imitation in the longevity market, Youth & Earth products

are differentiated by both their quality and the company's emphasis on optimum delivery mechanisms, such as liposomal and sublingual delivery;

- Youth & Earth considers heavy metal contamination in supplements to be a very real and serious issue. The company offers third-party testing at Campden BRI, ensuring that all their products are both heavy metal free and 100% pharmaceutical grade, improving confidence for consumers who are beginning to take notice of purity and quality of supplements;
- Youth & Earth has paid attention to enhancing the bioavailability of the products that they sell. The quality and enhanced bioavailability has the potential to provide more of an immediate experience for consumers, and potentially create and enhance brand-loyalty in its customers;
- Evidence of enhanced NAD+ levels due to sublingual and liposomal technologies could further enhance Youth & Earth's products in the market;
- Youth & Earth maintain that they attempt to source products that are, where possible, plant based and natural in origin, and their packaging is recyclable and eco-friendly;
- The company have suggested they would like to enter the emerging area of home test kits especially around anti-aging biomarkers especially in the UK, as they believe this would be a great fit for their existing customer base.

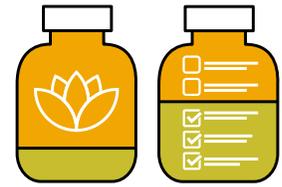
Funding

- The company has stated that they are always interested in funding opportunities that will support their growth ambitions;
- Any new capital would be primarily used to extend marketing activities in the UK & Europe and to launch into other global markets;
- No further detailed information on Youth & Earth funding is available at the present time.

Youth & Earth: success grid



 = Positive progress  = Work-in-progress  = Needs attention



About us

The report has been produced by the Market Intelligence Unit of LongevityTechnology – the number one online destination for daily news on the growing longevity market.

As a brand of First Longevity Limited, we bring together innovators and investors to commercialise the companies that will form the longevity economy.

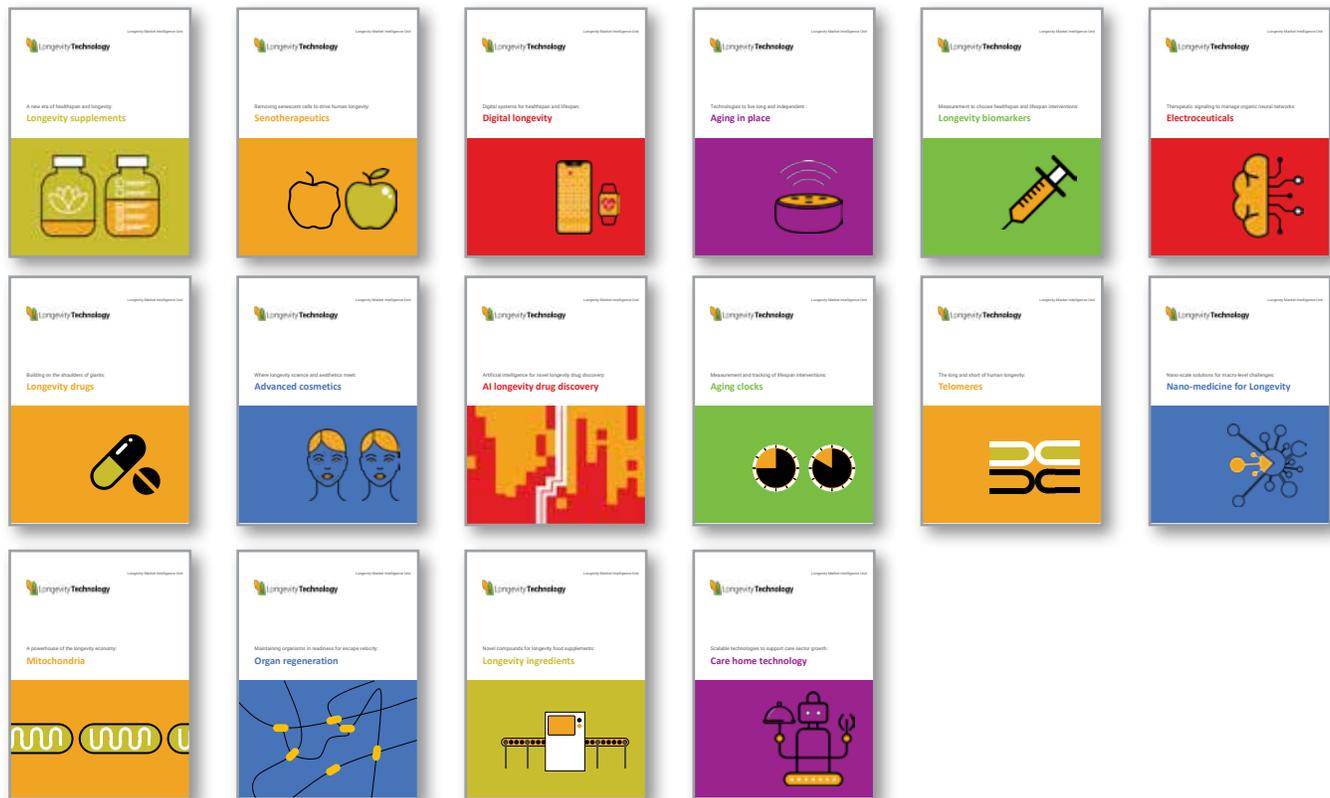
There are already 100+ rejuvenation biotechs working on unique therapies and building R&D pipelines to increase healthspan and lifespan.

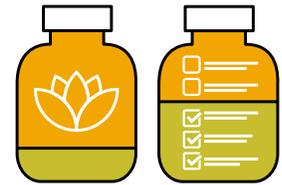
At the same time, all around the world, innovators are releasing nanobots, reprogramming nerve signals and applying AI to create exciting and scalable contributions to human longevity.

As a team we look beyond rejuvenation therapies to embrace other technologies that participate in the longevity investment category: agetech, xenotransplantation, biomarkers, AI, bioprinting, neuroceuticals, GRAS supplements ... over the coming period we will be publishing regular reports.

There are multiple technologies that contribute to the reduction of morbidity and the extension of lifespan: they will provide investors and innovators with both risks and returns. We're here to help analyse, report and educate.

You can find information about our next reports by visiting: <https://longevity.technology/product-category/analysis/>





**We bring together innovators
and investors to commercialise
the companies that will form
the longevity economy.**

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