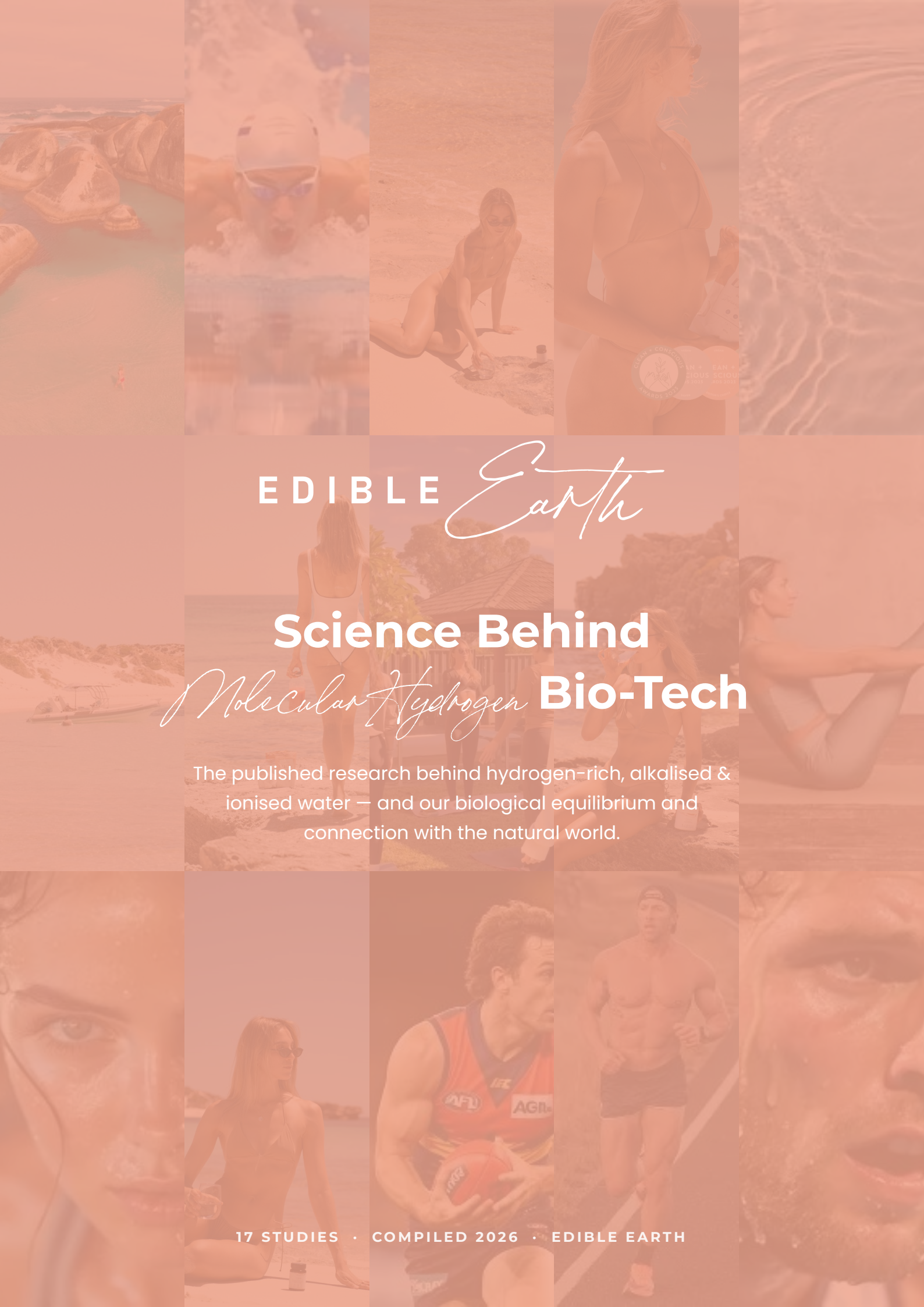


EDIBLE *Earth*

Science Behind *Molecular Hydrogen* Bio-Tech

The published research behind hydrogen-rich, alkalised & ionised water — and our biological equilibrium and connection with the natural world.

17 STUDIES · COMPILED 2026 · EDIBLE EARTH

ABOUT THIS DOCUMENT

Grounded in *Published Research*

Edible Earth was founded on a simple idea: that water — properly structured, mineralised and energised — is one of the most powerful tools we have for supporting the body's natural equilibrium. Across our GLOW, DETOX, CALM, AGELESS and LIMITLESS ranges, that idea is grounded in real, published science.

This document brings together seventeen studies on molecular hydrogen, alkalised and ionised water, and negative ionisation — spanning cardiovascular and liver health, inflammation, healthy ageing, gut health, exercise recovery, mood, and our broader connection to the natural environment. Each entry links directly to the original published research so you can read the full study yourself.

PLEASE NOTE

This document is provided for general education and interest. It summarises independent, peer-reviewed and preliminary scientific research relating to molecular hydrogen, alkalised water and negative ionisation, presented as objectively as possible. It is not medical advice and does not replace guidance from a qualified healthcare professional — please consult your doctor about your individual circumstances.

SECTION ONE

Molecular *Hydrogen*-Rich Water

The most extensively studied of the three — spanning cardiovascular and liver health, inflammation, healthy ageing, gut health, mood and exercise recovery.

13 STUDIES

CARDIOVASCULAR / ENDOTHELIAL FUNCTION

Peripheral *endothelial* function can be improved by daily consumption of water containing over 7 ppm of dissolved hydrogen: A randomized controlled trial

Ishibashi T, et al. · PLOS ONE · 2020

A randomised controlled trial finding that daily intake of higher-concentration hydrogen water was associated with improved flow-mediated dilation, a marker of blood-vessel (endothelial) function, compared with lower-concentration water.

Read the Full Study → PubMed 32470022

INFLAMMATION

Hydrogen-rich water reduces *inflammatory* responses and prevents apoptosis of peripheral blood cells in healthy adults: a randomized, double-blind, controlled trial

Sim M, et al. · Scientific Reports · 2020

A double-blind RCT in healthy adults reporting reduced pro-inflammatory markers and reduced cell-death signalling in blood cells after a period of hydrogen-rich water intake.

Read the Full Study → Nature / Scientific Reports

LIVER HEALTH

Hydrogen-rich water reduces *liver fat* accumulation and improves liver enzyme profiles in patients with non-alcoholic fatty liver disease: a randomized controlled pilot trial

Korovljev D, et al. · Clinics and Research in Hepatology and Gastroenterology · 2019

A small pilot RCT in people with non-alcoholic fatty liver disease found reduced liver fat and improved liver enzyme readings after eight weeks of hydrogen-rich water versus placebo water.

Read the Full Study → PubMed 30982748

ONCOLOGY RESEARCH (ADJUNCTIVE)

A Systematic Review of Molecular Hydrogen Therapy in *Cancer Management*

Mohd Noor MNZ, et al. · Asian Pacific Journal of Cancer Prevention · 2023

A systematic review summarising preclinical and early clinical evidence on molecular hydrogen's antioxidant and anti-inflammatory activity and its investigated role as an adjunct alongside conventional cancer care.

Read the Full Study → PubMed 36708550

HEALTHY AGEING

The effects of 6-month hydrogen-rich water intake on molecular and phenotypic *biomarkers of aging* in older adults aged 70 years and over: A randomized controlled pilot trial

Zanini A, et al. · Experimental Gerontology · 2021

A pilot RCT in adults aged 70+ examining molecular and phenotypic ageing biomarkers after six months of hydrogen-rich water intake versus control.

Read the Full Study → PubMed 34601077

GUT MICROBIOME

The effects of hydrogen-rich water on *gut microbiota* and related health outcomes: A systematic review

Zaheer M, Tarnava A, LeBaron TW, et al. · Molecular Aspects of Medicine · 2025

A systematic review collating the available studies on how hydrogen-rich water intake relates to gut microbiota composition and associated health outcomes.

Read the Full Study → ScienceDirect

DIGESTIVE HEALTH (PRECLINICAL)

Hydrogen-rich water partially alleviate inflammation, oxidative stress and intestinal flora dysbiosis in DSS-induced chronic *ulcerative colitis* mice

Song L, et al. · Advances in Medical Sciences · 2022

An animal (mouse) study — not a human trial — reporting that hydrogen-rich water partially reduced inflammation, oxidative stress and gut-flora imbalance in a chemically induced model of ulcerative colitis.

Read the Full Study → PubMed 34784538

FATIGUE (LONG-COVID)

The Effect of 14-Day Consumption of Hydrogen-Rich Water Alleviates *Fatigue* but Does Not Ameliorate Dyspnea in Long-COVID Patients: A Pilot, Single-Blind, and Randomized, Controlled Trial

Tan Y, et al. · Nutrients · 2024

A pilot RCT in long-COVID patients found reduced self-reported fatigue after fourteen days of hydrogen-rich water, though breathlessness (dyspnoea) was not improved.

Read the Full Study → MDPI / Nutrients

SLEEP & METABOLIC MARKERS

The Effects of 8-Week Hydrogen-Rich Water Consumption on Appetite, Body Composition, *Sleep Quality*, and Circulating Glucagon-like Peptide-1 in Obese Men and Women (HYDRAPPET): A Randomized Controlled Trial

Todorovic N, et al. · Medicina (Kaunas) · 2025

An RCT in adults with obesity examining appetite, body composition, sleep quality and GLP-1 (an appetite-regulating hormone) after eight weeks of hydrogen-rich water.

Read the Full Study → MDPI / Medicina

EXERCISE RECOVERY

Hydrogen Rich Water Consumption Positively Affects *Muscle Performance*, Lactate Response, and Alleviates Delayed Onset of Muscle Soreness After Resistance Training

Botek M, et al. · Journal of Strength and Conditioning Research · 2022

An RCT reporting improved muscle performance, lactate clearance and reduced next-day muscle soreness in athletes drinking hydrogen-rich water around resistance training sessions.

Read the Full Study → PubMed 33555824

MOOD & NERVOUS SYSTEM

Hydrogen-rich water for improvements of *mood*, anxiety, and autonomic nerve function in daily life

Mizuno K, et al. · Medical Gas Research · 2018

A study of daily hydrogen-rich water intake in healthy participants reporting associations with improved mood, lower anxiety scores and favourable autonomic nervous system markers.

Read the Full Study → PubMed 29497485

SKIN HEALTH (PRECLINICAL)

The Drinking Effect of Hydrogen Water on *Atopic Dermatitis* Induced by Dermatophagoides farinae Allergen in NC/Nga Mice

Ignacio RMC, et al. · Evidence-Based Complementary and Alternative Medicine · 2013

An animal (mouse) study — not a human trial — reporting reduced allergic, eczema-like skin symptoms in mite-allergen-sensitised mice given hydrogen water to drink.

Read the Full Study → Wiley Online Library

METABOLIC SYNDROME

The Effects of 24-Week, High-Concentration Hydrogen-Rich Water on Body Composition, Blood Lipid Profiles and Inflammation Biomarkers in Men and Women with *Metabolic Syndrome*: A Randomized Controlled Trial

LeBaron TW, Singh RB, Fatima G, et al. · Diabetes, Metabolic Syndrome and Obesity · 2020

A 24-week RCT in adults with metabolic syndrome reporting favourable changes in body composition, blood lipid profiles and inflammation markers with high-concentration hydrogen-rich water.

Read the Full Study → PubMed 32273740

SECTION TWO

Alkaline & *Ionised* Water

How raising water's pH and electrolysing it may support digestion, pepsin inactivation and antioxidant status.

2 STUDIES

ALKALINE WATER — DIGESTIVE HEALTH

Potential Benefits of pH 8.8 Alkaline Drinking Water as an Adjunct in the Treatment of *Reflux Disease*

Koufman JA, Johnston N. · Annals of Otology, Rhinology & Laryngology · 2012

A laboratory and clinical study proposing that pH 8.8 alkaline water may help inactivate pepsin (a digestive enzyme implicated in acid reflux) and support a reflux-reducing diet, as an adjunct rather than a standalone treatment.

Read the Full Study → PubMed 22844861

IONISED (ELECTROLYZED) WATER — ANTIOXIDANT STATUS

Antioxidant effects of continuous intake of electrolyzed hydrogen water in healthy adults

Mizuno K, Watanabe K, Yamano E, et al. · Heliyon · 2022

A study in healthy adults reporting favourable shifts in antioxidant status markers with continuous daily intake of electrolyzed (ionised) hydrogen water.

Read the Full Study → ScienceDirect / Heliyon

SECTION THREE

Negative Ions & Human Biology

The evidence linking negative air ionisation to mood, and to our broader sense of equilibrium and connection with the natural world.

2 STUDIES

NEGATIVE IONS — MOOD & DEPRESSION

Controlled trial of bright light and negative air ions for chronic *depression*

Goel N, Terman M, Terman JS, Macchi MM, Stewart JW. · Psychological Medicine · 2005

A controlled trial finding that high-density negative air ion exposure produced antidepressant effects comparable to bright light therapy in people with chronic depression.

Read the Full Study → PubMed 16045061

NEGATIVE IONS — EVIDENCE OVERVIEW

Air ions and *mood outcomes*: a review and meta-analysis

Perez V, Alexander DD, Bailey WH. · BMC Psychiatry · 2013

A meta-analysis of 33 human studies (1957–2012) finding that negative air ionisation was linked to lower depression scores at the highest exposure levels, while effects on anxiety, general mood, relaxation, sleep and comfort were inconsistent across studies — a useful reminder that evidence in this area is still developing.

Read the Full Study → PubMed 23320516

IN CLOSING

Water, *Equilibrium* & Our Place in Nature

The science in this document points to something we've always believed at Edible Earth: that small changes to the water we drink each day can ripple outward — supporting our cells, our energy, our mood, and our sense of balance with the world around us.

We'll keep adding to this collection as new research is published. Thank you for taking the time to read the evidence behind GLOW, DETOX, CALM, AGELESS and LIMITLESS.

EDIBLE *Earth*