A Unified Thesis

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Synthesised from: (Applebee & Combe, 2026, "*The Inverted Burden*") (*Reversing the Burden of Proof in Food Safety*), (Applebee & Combe, 2026, "*Food Safety*") (*What Are You Eating?*), and supporting research chapters on Kitava, Okinawa, Inuit, Tsimane, Wai, and Blue Zone populations; AGE biochemistry; regulatory capture; gut-skin axis; comparative primate nutrition; and psychoneuroimmunology.

Author's Note

This document exists because of two numbers on a wall.

Goal 10 (food proven safe) (food proven safe): Food contains only things proven safe.

Goal 14 (cancer prevention) (cancer prevention): Cancer is 90% preventable. Here's how.

Those are not slogans. They are design requirements. They come from watching someone you love get sick and realising the thing that made them sick was approved by the people selling it. They come from reading the research and discovering that the scientific community has known for decades that traditional populations do

not develop the diseases we treat as inevitable -- and that nobody acted on it, because acting on it would cost the food industry money.

The precautionary principle says: if something might cause serious harm, do not permit it until you have proven it safe. We apply this principle to pharmaceuticals, to building materials, to chemicals in the workplace. We do not apply it to food. The substance you swallow once, under medical supervision, must pass a decade of clinical trials. The substance you swallow three times a day, every day, from birth to death, is permitted until someone proves it is killing you -- and even then, the proof takes another decade to act on.

This thesis synthesises the evidence. It draws on cross-cultural epidemiological data from populations that eat what humans evolved to eat and do not develop Western diseases. It examines the regulatory architecture that permits untested substances in the food supply. It traces specific biochemical mechanisms -- Advanced Glycation End-products, gut microbiome disruption, chronic inflammation -- by which processed food produces disease. And it proposes a simple fix: reverse the burden of proof. Nothing goes in food that has not been proven safe.

The evidence is not new. Schaefer documented the Inuit in 1971. Lindeberg studied Kitava from 1989. Doll and Peto published their cancer estimates in 1981. The research community has known for half a century that Western disease is a function of Western diet. What is new is the synthesis -- the argument that these findings, taken together, constitute an indictment of the regulatory framework that permits the food supply to remain as it is.

Strong rhetoric serving human flourishing is not epistemic abuse. This thesis does not soften its conclusions. The data does not require softening. If a zookeeper fed an animal untested food and the animal developed chronic disease, the zookeeper would be charged with negligence. We feed ourselves untested food. We develop chronic disease. We call it ageing.

It is not ageing. It is food.

-- A.A. & L.N.C.

Abstract

The modern food supply operates under an inverted burden of proof: substances are permitted in food until demonstrated harmful, rather than excluded until demonstrated safe. This thesis argues that this inversion is ethically indefensible, scientifically unjustifiable, and causally linked to the epidemic-scale chronic disease burden of industrialised populations.

Drawing on cross-cultural epidemiological evidence from traditional populations -- including the Kitava study (n=1,200; zero acne, near-zero cardiovascular disease, diabetes, and cancer), the Tsimane (n=705; 85% zero coronary artery calcium, lowest atherosclerosis ever recorded), Okinawan longevity data, Inuit disease profiles, the Ache (n=115; zero acne over 843 days), and the Pima natural experiment (same genome, 38% vs 6.9% diabetes depending on diet) -- we demonstrate that *Homo sapiens* consuming species-appropriate diets do not develop the diseases currently treated as inevitable features of human ageing.

These populations are not genetically privileged. When they adopt Western diets, Western disease rates emerge within a single generation.

The thesis examines: (1) the regulatory capture of food safety agencies through industry self-certification mechanisms such as the United States GRAS framework, where 100% of expert panels reviewing additive safety had financial conflicts of interest; (2) the role of Advanced Glycation End-products as a specific mechanistic pathway linking processed food to chronic disease via RAGE activation, NF-kB signalling, and chronic inflammation; (3) the gut-skin axis as a diagnostic signal of dietary mismatch, paralleling the zoological concept of "dirty tail" in koalas with gut dysbiosis; (4) the function of $200+ billion in annual food marketing as the mechanism by which industrial food production determines human diet; and (5) the New Zealand Psychoactive Substances Act 2013 as a legislative template for reversing the burden of proof.

The central argument is simple: food should not contain anything not yet proven safe beyond reasonable doubt. The current system -- add it, sell it, wait for damage, then maybe regulate -- is not a precautionary framework. It is an experiment conducted on an unconsenting population. The results of that experiment are in: obesity, type 2 diabetes, cardiovascular disease, and cancer at epidemic scale. Ninety percent of cancer is preventable. The food supply is the largest modifiable variable. The fix is to reverse the burden of proof.

(387 words)

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1. Introduction: Every Animal Except One

Every animal on Earth eats what it evolved to eat. Lions eat what lions ate a hundred thousand years ago. Salmon eat what salmon ate a hundred thousand years ago. Every species in every ecosystem consumes the food that its biology was shaped by, and the result is predictable: they develop the diseases appropriate to their species at the rates appropriate to their species.

Every animal except one.

Homo sapiens, in the last approximately seventy years, has undergone the most radical dietary transformation in the history of any species. The food consumed by a typical human in an industrialised nation in 2026 bears almost no resemblance to the food consumed by any human at any point in the preceding two hundred thousand years of the species' existence. The shift is not a matter of degree. It is categorical. The majority of calories consumed in the modern Western diet come from substances that did not exist in any human diet before the mid-twentieth century: refined seed oils, high-fructose corn syrup, synthetic emulsifiers, artificial preservatives, flavour enhancers, colourings, stabilisers, and ultra-processed food matrices that no human metabolism was ever exposed to during the evolutionary period in which human biology was formed (Monteiro et al., 2013).

The result of this experiment is not ambiguous. The industrialised world is experiencing epidemic-scale rates of obesity, type 2 diabetes, cardiovascular disease, cancer, autoimmune conditions, neurodegenerative diseases, allergies, and mental health disorders. These conditions are treated, culturally and medically, as though they are inevitable consequences of being human -- as though getting cancer is something that happens to organisms of our type, as though type 2 diabetes is a feature of ageing, as though heart disease is a natural cause of death.

It is not. The epidemiological evidence from traditional populations -- populations of the same species, with the same genome, living on different diets -- demonstrates conclusively that these diseases are not features of being human. They are features of eating what the modern food supply provides.

This thesis argues for a simple principle: **food should not contain anything not yet proven safe beyond reasonable doubt.** The burden of proof must be reversed. Currently, any substance can be added to the food supply and sold to billions of people until sufficient evidence accumulates -- usually over decades, usually through the suffering and death of those same people -- to warrant regulatory action. This is not a

precautionary system. It is a post-hoc damage assessment system. It treats the human population as an experimental cohort and waits for the data to arrive in the form of disease statistics.

The principle we propose is not radical. It is the default assumption in every other domain where substances interact with human biology. Pharmaceuticals must pass Phase I, II, and III clinical trials before market entry. Novel chemicals require toxicological assessment before industrial use. Building materials must meet safety standards before installation. Only food -- the substance that enters every human body multiple times daily, from birth to death, across every demographic -- operates under the reversed assumption: permitted until proven harmful.

This thesis synthesises evidence across twelve domains to construct the case for reversal: the precautionary principle and its inversion in food regulation; the epidemiological evidence from traditional populations; the gut-skin axis as a diagnostic signal; the mechanistic pathways linking processed food to disease; the additive burden; the regulatory capture of food safety agencies; the role of marketing in determining human diet; the preventability of cancer and chronic disease; the seventy-year experiment of industrial food production; the psychoneuroimmunological evidence linking system design to health outcomes; and the New Zealand legislative precedent.

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2. The Precautionary Principle and Its Inversion

2.1 The Principle Stated

The precautionary principle, as formulated in the 1992 Rio Declaration on Environment and Development, states: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (United Nations, 1992). Its logic is straightforward: when the potential consequences of an action are severe and the evidence base is incomplete, the default position should be caution rather than permission.

In food safety regulation, this principle is inverted. The default position is permission. A substance may be added to the food supply unless evidence demonstrates it is harmful. The burden falls not on the

manufacturer to prove safety, but on regulators, researchers, and ultimately the consuming public to prove danger -- after exposure has already occurred, often across decades and millions of people.

2.2 How the Inversion Operates

The practical operation follows a predictable sequence:

Step 1: Introduction. A food manufacturer identifies a substance that reduces production costs, extends shelf life, improves visual appearance, or enhances a processing property.

Step 2: Regulatory tolerance. The substance is either approved through an expedited review process (often relying on manufacturer-supplied safety data), self-certified as safe by the manufacturer under frameworks like GRAS, or simply used without formal approval.

Step 3: Population exposure. The substance enters the food supply at scale. Millions or billions of people consume it daily. This exposure is not a clinical trial. There is no control group, no monitoring protocol, no informed consent, no adverse event reporting system.

Step 4: Signal accumulation. Over years or decades, epidemiological signals emerge. Industry disputes the findings, funds counter-research, and emphasises methodological limitations -- correctly, but selectively, since the same limitations that complicate the detection of harm also complicate any claim of safety.

Step 5: Regulatory response (maybe). If the evidence becomes overwhelming, regulatory action may follow -- typically incremental, typically delayed by years or decades beyond the point at which the evidence warranted it.

Step 6: Continued exposure during deliberation. Throughout the regulatory process, the population continues to be exposed. The burden of the delay falls entirely on the consuming public.

2.3 The Pharmaceutical Comparison

The contrast with pharmaceutical regulation illuminates the absurdity. Before a pharmaceutical compound can be administered to patients, it must pass through preclinical testing, Phase I trials (20-100 people), Phase II trials (100-300 people), Phase III trials (1,000-3,000+ people), regulatory review, and Phase IV post-market surveillance. This process takes 10-15 years and costs $1-2 billion. It is considered the minimum acceptable

standard for a substance administered to patients under medical supervision, at specific doses, for defined durations, with informed consent.

Food additives -- substances administered to every person in a population, without medical supervision, at uncontrolled doses, for a lifetime, without informed consent -- face no comparable requirement. The disparity is not defensible on any rational basis.

2.4 The Asymmetry of Evidence Requirements

To introduce a substance into the food supply, a manufacturer needs minimal evidence of safety -- in many cases, no independent evidence at all. To remove a substance, regulators need overwhelming evidence of harm, sustained across multiple studies, sufficient to withstand legal challenge by well-resourced corporate defendants.

This asymmetry produces a ratchet effect: substances accumulate in the food supply over time, with each addition facing low barriers and each removal facing high ones. The modern processed food supply, containing thousands of additives that did not exist a century ago, is the predictable output of this ratchet.

Trans fats provide the paradigmatic example. Evidence linking partially hydrogenated oils to cardiovascular disease began accumulating in the 1990s. Regulatory action in the United States was not finalised until 2015, with a compliance date of 2018. The estimated health cost of this delay runs to tens of thousands of preventable deaths (Mozaffarian et al., 2006). This is not an exception. It is the norm.

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3. The Evidence from Traditional Populations

3.1 The Kitava Study

The most significant natural experiment in human nutrition was conducted by Staffan Lindeberg and colleagues on the island of Kitava, in the Trobriand Islands of Papua New Guinea. The study, spanning work

from 1989 through the 2000s, examined approximately 1,200 individuals consuming a traditional diet: tubers (yam, sweet potato, taro), fruit, fish, and coconut (Lindeberg, 1993; Lindeberg et al., 1994).

Macronutrient composition: Carbohydrates 69%, fat 21% (17% saturated from coconut), protein 10%. Western food constituted less than 1% of intake (~$3 USD/year). Zero consumption of dairy, alcohol, coffee, tea, oils, margarine, cereals, or refined sugar.

The findings:

Zero acne. In 1,200 subjects, including 300 aged 15-25 (the peak age for acne in Western populations), not a single case of acne vulgaris -- not even a single comedone (Cordain et al., 2002). In Western populations, acne affects 79-95% of adolescents (Bhate & Williams, 2013). This is not a minor difference. It is a near-absolute presence versus a near-absolute absence.

Near-zero cardiovascular disease. Lindeberg et al. (1994) found significantly lower blood pressure (all diastolic 3 years old. 213 adults interviewed. 171 ECGs.

- Finding: "No case corresponding to stroke, sudden death or angina pectoris."
- ECG: Minimal abnormalities even in 80s-90s age group.
- Life expectancy: ~45 at birth (high infant/child mortality), ~75 conditional on reaching age 50.

Key Publications

1. Lindeberg & Lundh. J Intern Med 1993;233(3):269-275
2. Lindeberg et al. J Intern Med 1994;236(3):331-340
3. Lindeberg et al. Metabolism 1999;48(10):1216-1219
4. Lindeberg et al. J Intern Med 2001;249(6):553-558
5. Cordain, Lindeberg et al. Arch Dermatol 2002;138(12):1584-1590
6. Lindeberg et al. Diabetologia 2007;50(9):1795-1807
7. Lindeberg. Food and Western Disease. Wiley-Blackwell, 2010
8. Carrera-Bastos et al. Am J Hum Biol 2024

Appendix C: Wai Diet Critical Assessment

Verdict

The Wai Diet (raw fruits, olive oil, raw fish, raw egg yolks, nuts) mixes legitimate science with false claims and dangerous advice. Three findings are book-worthy. The rest ranges from overstated to irresponsible.

What Is Real and Useful

1. The gut-skin axis -- 54% of acne patients have documented gut dysbiosis. Mendelian randomisation confirms causal relationships. The parallel between koala dirty tail and human acne is exact and scientifically supported.

1. The capuchin gut morphology comparison (Milton, 1987) -- Human gut proportions statistically group with capuchins and baboons, not great apes. Real finding, cherry-picked by Wai Diet but independently useful.

1. Heterocyclic amines from cooking -- Real, well-established food chemistry. IARC-classified as probable/possible carcinogens. The claim that 1g grilled beef equals 8 cigarettes for 2 specific mutagens is real but overall cancer risk comparison is misleading.

What Is Wrong or Dangerous

Beta-carbolines / "cooked food is addictive" -- No published evidence. Would undermine credibility.

Wheat/dairy opioid peptides "100x more powerful than morphine" -- The potency claim is fabricated. Gluten exorphin B5 is 1.2-4.2x *weaker* than leucine-enkephalin.

Fibre is unnecessary/harmful -- Contradicted by meta-analysis of 64 prospective studies (fibre reduces all-cause mortality 23%, CVD mortality 26%, cancer mortality 22%).

"Train your immune system" against salmonella -- Dangerous pseudoscience. Could kill someone.

Assessment

The impulse -- to return to species-appropriate nutrition -- is correct. The execution is ideological rather than scientific. The real science the Wai Diet points at (gut-skin axis, HCAs, capuchin morphology) is valuable. The Wai Diet itself is not.

Appendix D: Cross-References to OMXUS Research Series

This thesis is part of the OMXUS Research Series. The following papers address related domains:

PAPER	TITLE	RELEVANCE
(Applebee & Combe, 2026, "*Civic Proximity Response*")	Marketing to Self	Mechanisms by which marketing determines individual consumption patterns. Marketing is the zookeeper's tool.
(Applebee & Combe, 2026, "*The Bullshit Jobs Phenomenon*")	Cancer Preventability	Establishes that 90-95% of cancers are attributable to environmental/lifestyle factors. This thesis extends that finding to the food supply specifically.
(Applebee & Combe, 2026, "*Wanted Attention for Unwanted Results*")	Traditional Diets	Documents health outcomes of populations consuming unprocessed diets. This thesis uses that evidence as the foundation for a regulatory proposal.
(Applebee & Combe, 2026, "*Swiss Direct Democracy*")	Direct Democracy	Demonstrates that regulatory systems can serve populations when the political architecture permits citizen input. Food safety regulation requires structural reform.
(Applebee & Combe, 2026, "*The Inverted*	Reversing the Burden of Proof in	The full academic version of this thesis's regulatory argument. 78 references, mechanistic

Burden")	Food Safety	pathways, regulatory analysis.
(Applebee & Combe, 2026, "*Food Safety*")	What Are You Eating?	The accessible version. Kitchen table language. Same evidence, different register.

Related Research Directories

DIRECTORY	CONNECTION
cellulite_ages/	Detailed AGE/Maillard mechanism analysis -- the biochemistry underlying the diet-disease pathway discussed in Chapter 5.
food_toxicology_safety/	Regulatory framework analysis; GRAS system; the policy argument for reversing the burden of proof (Chapter 7).
inflammation_depression_gutbrain/	Gut inflammation from diet connects to depression via inflammatory pathways (CRP, IL-6). Diet is upstream of both physical and mental health (Chapter 11).
drug_policy_reform/	Portugal model (80% fewer overdose deaths). Connection: the precautionary principle applies to what enters the body -- both food additives and criminalised substances. Both regulated by systems that serve industry, not people.
sleep_science/	Sleep/metabolism interconnection; insulin sensitivity affected by sleep (Spiegel 1999). The system that demands 40+ hours destroys sleep, which destroys metabolic health.
movement_endurance/	Kitava/Tsimane populations combine traditional diet with high physical activity; both variables contribute. The Tsimane paradox (lowest CVD despite elevated CRP) may partly reflect 6-7 hours daily physical activity.
loneliness_physiology/	Blue Zone populations combine diet, movement, AND social connection. Isolating diet effects requires acknowledging these confounders -- which this thesis does in its limitations (Chapter 14).

barefoot_shoes/	Environmental health interventions where modern conditions produce disease absent in traditional populations. Same pattern: the organism's biology assumes conditions that no longer exist.
community_policing_alternatives/	CAHOOTS model (35 years of community crisis response). Relevant to Goal 5 (community crisis response) and the psychoneuroimmunology argument: systems designed for human safety reduce chronic stress, which reduces inflammation, which reduces disease.
bystander_effect/	Personal alert systems (PulsePoint, GoodSAM) increase bystander CPR rates by 33%. Relevant to Goal 13 ($29 emergency ring) ($29 emergency ring) ($29 ring, 60-second response). Community emergency response is both a safety intervention and a health intervention -- reducing the chronic stress of knowing help will not come.

This document synthesises the full evidence base from the health_diet_book research project. The academic version ((Applebee & Combe, 2026, "The Inverted Burden")) contains the complete regulatory analysis with 78 references. The accessible version ((Applebee & Combe, 2026, "Food Safety")) contains the same argument in kitchen table language. This unified thesis contains both, alongside the population data, mechanistic evidence, psychoneuroimmunological framework, and cross-references that connect food safety to the broader OMXUS research programme.

The menu was designed for someone. It was not designed for you.