Case Report

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The Maasai Diet: A 30-Day Case Report

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The Maasai Diet: A 30-Day Case Report

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Abstract

Background: A healthy 31-year-old male, with a history of veganism followed by a carnivorous diet, sought to adopt a Maasai-inspired diet consisting exclusively of cow's blood and milk for 30 days. The subject, a physically active forest worker, aimed to address health issues experienced during his vegan period, which included depression, being underweight, tooth decay, and loss of libido. **Methods:** The subject collected (from the butcher) and prepared 2 liters of cow's blood weekly, ensuring it remained non-coagulant through stirring, and refrigerated for up to 7 days. Forty liters of raw milk were procured, from which cream was separated and consumed to minimize casein intake. Biochemical parameters were monitored, including CRP levels, lipid profile, liver enzymes, renal function, electrolytes, and others. **Results:** Over the 30-day period, the subject's blood and cream consumption varied, with an intake of cow's blood on 21 days (30mL to 400mL) and cow's cream on all days (200mL to 2100mL). Raw milk was introduced on Day 7 and consumed on 24 days (100mL to 1750mL). Notable biochemical changes included an increase in blood glucose (+5.4%), LDL/HDL ratio improvement (+9.6%), free testosterone (+24.9%), and a significant decrease in total bilirubin (-32.3%) and MDA-LDL (-67.9%). Other parameters showed mixed results, with decreases in various liver enzymes and cholesterol levels, and increases in creatinine clearance and certain minerals. **Conclusion:** The exclusive consumption of cow's blood and milk resulted in numerous changes in biochemical markers, some of which may be beneficial, while others require cautious interpretation. The diet led to significant alterations in lipid metabolism, liver function, renal function, and mineral status, warranting further study on the long-term implications of such dietary practices.

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Introduction

The Maasai people are indigenous to East Africa, residing mainly in the southern regions of Kenya and extending into the northern parts of Tanzania[1]. They inhabit a territory commonly referred to as Maasailand, characterized by its semi-arid to arid conditions, sparse and erratic rainfall, and limited permanent water sources. This environment is prone to ecological stress, particularly when faced with increased use by humans and livestock, potentially leading to significant environmental changes, including the spread of bushland at the expense of other land types [2–4].

1.1. Plant Foods and Medicines of the Maasai

The flora of Maasailand is varied, mirroring the area's differences in moisture availability and geographical features [5]. Areas with more rainfall, such as the Mau and Loita Hills and the Nguruman escarpment, are home to native forest species like the East African cedar, a type of podocarpus, and the East African camphor [6]. In contrast, the drier regions predominantly feature various species of the Olea genus. Transitioning from forests, the landscape includes woodlands, grasslands, and bushlands, with common vegetation like Acacia, Themeda, Commiphora, as well as perennial grasses like Cenchrus ciliaris and Chloris roxburghiana [7].

The Maasai society has a deep connection with their land's vegetation. As pastoralists, they have extensive knowledge of the range's grasses, recognizing those that are beneficial for livestock nourishment and milk production, as well as those that contribute to the overall health and weight of their animals [8]. Besides their practical uses, many plants hold cultural and medicinal significance within Maasai traditions. Trees and shrubs, which the Maasai collectively term "olcani" and also use for fuel, play a significant role in their social and ritual practices [9–11].

In the lexicon of the Maasai, the term "olcani" encompasses a variety of plant-derived medicinal substances. This terminology extends to distinguish between arboreal species based on their morphological characteristics: those with thorns are categorized as 'warm trees', while those without are referred to as 'cold trees', with the latter group being further classified based on their sap-exuding properties [12–14].

The utility of trees extends to architectural applications in Maasai culture. Construction of domiciles involves the use of juvenile trees, which are fashioned into walls and reinforced with an application of bovine manure. These structures not only serve as shelter but also have a role in social and ceremonial events, providing necessary shade. Ritualistic uses of trees are also noted, where specific parts, such as bark and foliage, are utilized in rites intended to cleanse or protect against malevolent forces [15–17].

The incorporation of herbal remedies in Maasai life has been a long-standing tradition. Documented practices include the consumption of decoctions made from herbs, bark, and roots to ameliorate gastrointestinal and hematological conditions [18]. Furthermore, preparations derived from arboreal sources have been employed in the treatment of an array of health issues, from sexually transmitted infections and gastrointestinal disturbances to ocular and dental afflictions, among others [19].

Despite the advent of modern healthcare, traditional Maasai medicine persists, perhaps due to the relative isolation of pastoral regions from urban development hubs, rendering contemporary medical services less accessible [20,21]. The transmission of knowledge concerning medicinal herbs is an integral component of a Maasai child's upbringing, with boys gaining insight into the range's flora through their shepherding duties, and girls learning from maternal figures within domestic settings [22].

Home remedies are common for minor health complaints, with herbal concoctions serving not only therapeutic purposes but also as stimulants. For instance, the herb olkiloriti (Acacia nilotica) is ingested for its digestive properties, to invigorate, and to stave off hunger and thirst, particularly by the ilmurran (warriors) in preparation for expeditions [23]. Narratives from the Maasai recount the use of olkiloriti by warriors to fortify themselves against exhaustion and fear during raids.

1.2. Animal Foods and Medicines of the Maasai71

Sustenance derived predominantly from animal sources—fresh milk, fermented milk, blood, fat, and meat—raises important questions about its cardiometabolic and micronutrient effects when consumed as the backbone of a subsistence diet. The Maasai diet is traditionally rich in ruminant fats and proteins while being low in digestible carbohydrates, a pattern that contrasts with contemporary "balanced diet" guidance [11]. Classic field observations reported low prevalence of atherosclerotic disease in Maasai adults despite high intake of animal products [24,25]. More recent work adds nuance: high cardiorespiratory fitness and physical activity [26,27], distinct red-blood-cell fatty-acid profiles despite modest marine n-3 intake [28], and genetic adaptations related to lactase persistence and lipid handling [29] may jointly shape risk.

Daily animal foods are structured and purposeful. Fresh and fermented milk (often the principal staple) provide energy, high-quality protein, calcium, and bioactive lipids; blood is taken intermittently from live cattle and commonly consumed fresh or mixed with milk, particularly in periods of stress, convalescence, or ceremonial need; meat is eaten less frequently but in larger amounts during feasts. Blood and milk are also used medicinally or tonically in culturally specific contexts (e.g., to "restore strength" or support recovery), and animal fats can be administered as carriers for plant extracts [11,30]. Beyond macronutrients, dairy polar lipids may beneficially influence lipid transport and post-prandial metabolism [31], while interindividual differences in cholesterol absorption and gut microbial conversion of cholesterol to coprostanol offer additional mechanistic pathways linking diet to serum markers [32–36].

Taken together, these findings suggest that diet–health relationships in pastoral settings reflect an interplay between food matrices (raw and fermented ruminant dairy; episodic blood; fat quality), activity patterns, genetic traits, and microbiome functions—factors that differ substantially from urban, sedentary, high-refined-carbohydrate environments. This underscores the need for careful interpretation when extrapolating Western lipid-centric risk models to pastoral populations and motivates controlled, context-sensitive evaluations of biomarkers over time [26,27,37].

Methodological note. Where possible, we align observational claims with primary sources and distin-guish cultural/therapeutic uses (e.g., blood–milk mixtures, fat as a vehicle for botanicals) from general dietary intake patterns [11,30].

1.3. Historical Anthropological Accounts of Cow's Blood as Medicine

Historical accounts suggest that the consumption of blood has been intertwined with cultural be-liefs regarding vitality and health across various civilizations [7–9]. The Romans reportedly consumed the blood of gladiators, with the intention of assimilating their vigor. In similar cultural vein, ancient Egyptian practices included blood baths, purportedly for their revitalizing effects [8]. Classical literature, as seen in the works of Homer and Ovid, also reflect such themes, with narratives of rejuvenation and restoration of youth through blood [38].

In the 17th century, a Franciscan apothecary documented a prescription for a therapeutic preparation resembling jam, which utilized human blood as the primary ingredient. The detailed procedure for this concoction involved coagulating the blood, desiccating it, and then processing it into a paste, implying a methodical approach to the utilization of blood for perceived medicinal benefits [39–41].

The consumption of raw meat and blood was also documented in the 19th century for their supposed therapeutic properties, especially in cases of wasting diseases like tuberculosis. Dr. William H. Burt's medical literature from the era mentions the use of raw meat and blood in clinical therapy, albeit with an acknowledgment of the psychological aversion it might evoke [42–44].

Furthermore, occupational health was a topic of public interest, with various trades being scrutinized for associated health risks and benefits [45–47]. Reports from the time suggest that butchers were considered to be exceptionally healthy, an attribute some attributed to their practice of consuming blood [48]. Such consumption was seen as a practical measure for sustenance during demanding work hours and was believed to confer health benefits, a perspective that was reinforced by the apparent

resilience of butchers to epidemics [49].

These historical practices and beliefs underline a recurring hypothesis in human history: that blood consumption may harbor restorative powers. The scientific validity of these practices remains questionable; however, they provide insight into the historical human fascination with blood as a substance of potent biological and symbolic significance [47–51].

The primary aim of this study is to elucidate the physiological adaptations and potential health ramifications associated with the consumption of cow's milk and blood as exclusive nutritional sources. By extending the scope of investigation to a non-Maasai individual, the trial endeavors to provide insights that may challenge prevailing dietary guidelines and contribute to a more nuanced understanding of human nutritional flexibility and resilience.

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2. Materials and Methods

2.1. Participant Profile

The study was conducted on a healthy, 31-year-old male subject who had been following a carnivorous diet for the past four years. Prior to this, he had adhered to a vegan diet for four and a half years but discontinued due to health complications including depression, significant weight loss (42.5 kg at a height of 178 cm), tooth decay, and a complete loss of libido. As a physically active individual working as a forest worker and tree cutter, he sought to explore the potential health benefits of the "Maasai diet," which predominantly consists of blood and milk. His aim was to exclusively consume cow's blood and milk for a period of 30 days. The subject approached our research team to monitor his health and provide medical guidance throughout this dietary experiment.

2.2. Blood Collection and Preparation

Every week, the subject obtained 2 liters of fresh cow's blood from a local butcher. To prevent coagulation, the blood was immediately stirred continuously for over five minutes after extraction. This process facilitated the separation of fibrin clots, after which the remaining fluid blood was rendered non-coagulable. The prepared blood was then stored in a refrigerated environment at a consistent temperature, ensuring its preservation for up to seven days. It was noted that beyond this period, the blood developed an unfavorable taste and was deemed unsuitable for consumption.

2.3. Milk to Cream Conversion

The subject procured 40 liters of raw milk directly from a farmer to prepare the cream. The raw milk was left undisturbed overnight, allowing the cream to naturally separate and rise to the top. This process was chosen specifically to minimize the intake of casein, a protein found in milk that the subject intended to reduce in his diet. Each morning, the upper layer of cream was carefully collected for consumption, while the remaining milk was not used for the duration of the study.

2.4. Diet Administration

The subject's daily intake of cream, cow's blood, and raw milk was meticulously recorded. Cream consumption ranged from 0 to 2100 milliliters per day, with the subject adjusting the quantities based on personal preference and tolerance. Cow's blood was consumed in amounts varying from 0 to 400 milliliters daily, within the seven-day freshness window established by the taste and quality criteria. No raw milk was consumed directly; only the cream extracted from it was included in the subject's diet.

2.5. Data Collection

Data on the subject's daily consumption were recorded in a tabulated format, noting the specific intake of cream, cow's blood, and raw milk (in its cream form). This structured approach allowed for an accurate assessment of the dietary pattern and facilitated a comprehensive analysis of the diet's impact on the subject's health over the 30-day period.

2.6. Ethics Statement

This study was a retrospective analysis of a single case in which the intervention was self-initiated and self-directed by the individual described. The authors did not conduct any experimental procedures, assign interventions, or influence clinical decision-making. Because the analysis involved solely the documentation and evaluation of an independently conducted self-experiment without any external intervention or data collection by the investigators, formal approval from an

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institutional review board (IRB) or ethics committee was not required according to prevailing ethical guidelines.

3. Results

As represented through Table 1, the C-reactive protein (CRP) levels remained unchanged, indicating no increase in inflammation. Blood glucose levels rose slightly by 5.4%, suggesting a minor increase in blood sugar. Total bilirubin decreased significantly by 32.3%, which could be indicative of improved liver function. Liver enzymes such as ASAT and ALAT decreased by 3.8% and 32.0% respectively, while GGT dropped by 26.7%, which could suggest an improvement in liver health. Alkaline phosphatase levels saw a modest decrease of 8.0%.

The lipid profile improved notably; cholesterol levels decreased by 21.3%, with a significant reduction in LDL cholesterol by 23.7% and HDL cholesterol by 15.6%. Consequently, the LDL to HDL ratio improved by 9.6%. Triglycerides, however, increased by 6.6%. Kidney function as measured by creatinine levels improved (a decrease of 15.2%), and estimated glomerular filtration rate (eGFR) increased by 9.1%, indicating better kidney filtering function. Uric acid levels decreased by 6.7%, which could reduce the risk of gout and kidney stones.

Iron metabolism was affected, with iron levels dropping by 39.2% and transferrin by 9.5%. Transferrin saturation decreased by 32.8%, but ferritin levels increased by 19.2%, which could suggest changes in iron storage. Total protein levels went down by 9.5%, possibly reflecting dietary changes. Electrolyte levels of sodium and potassium changed minimally, with a slight decrease in sodium and a 13.6% increase in potassium.

Free testosterone levels increased significantly by 24.9%. TNF-alpha, an inflammatory marker, decreased slightly by 2.1%. Markers of oxidative stress, such as MDA-LDL, decreased by a substantial 67.9%, which could indicate reduced oxidation of LDL cholesterol. Intestinal fatty acid-binding protein (I-FABP) levels, however, increased dramatically by 224.2%, which may suggest an increase in intestinal damage or inflammation. Homocysteine, a marker associated with cardiovascular risk, also increased significantly by 81.9%. Whole blood analysis showed minor changes in most minerals, with magnesium, selenium, and copper levels increasing slightly. Zinc, calcium, phosphorus, and manganese levels decreased. Notably, chromium and molybdenum levels increased by 14.8% and 20.0%, respectively.

Table 1. Laboratory Evaluations between 10.01.24 and 24.02.24.

Parameter	10.01.24	24.02.24	% Change
CRP mg/l	1.0	1.0	0.0%
Glucose mg/dl	111.0	117.0	5.4%
Total Bilirubin mg/dl	0.7	0.4	−32.3%
AST (ASAT) U/l	26.0	25.0	−3.8%
ALT (ALAT) U/l	25.0	17.0	−32.0%
GGT U/l	15.0	11.0	−26.7%
Alkaline Phosphatase U/l	75.0	69.0	−8.0%
Cholesterol mg/dl	334.0	263.0	−21.3%
HDL mg/dl	64.0	54.0	−15.6%
LDL mg/dl	257.0	196.0	−23.7%
LDL/HDL Ratio	4.0	3.6	−9.6%
Triglycerides mg/dl	71.0	75.7	6.6%
Creatinine mg/dl	0.9	0.8	−15.2%
eGFR ml/min	110.0	120.0	9.1%
Uric Acid mg/dl	6.0	5.6	−6.7%
Iron μmol/l	26.3	16.0	−39.2%
Transferrin mg/dl	275.0	249.0	−9.5%
Transferrin Saturation %	38.1	25.6	−32.8%
Ferritin ng/ml	208.0	248.0	19.2%
Total Protein g/dl	8.3	7.5	−9.5%

Sodium mmol/l	138.0	137.0	−0.7%
Potassium mmol/l	4.4	5.0	13.6%
Free Testosterone pg/ml	11.1	13.9	24.9%
TNF-alpha pg/ml	9.7	9.5	−2.1%
MDA-LDL U/l	171.0	54.9	−67.9%
I-FABP pg/ml	1115.0	3615.0	224.2%
Homocysteine μmol/l	9.4	17.1	81.9%
WHOLE BLOOD ANALYSIS			
Magnesium mg/l	32.6	32.9	0.9%
Selenium μg/l	89.9	96.3	7.1%
Zinc mg/l	5.0	4.9	−2.0%
Calcium mg/l	64.0	60.0	−6.3%
Potassium mg/l	1703.0	1780.0	4.5%
Sodium mg/l	1586.0	1712.0	7.9%
Phosphorus mg/l	496.0	473.0	−4.6%
Chromium μg/l	0.3	0.3	14.8%
Copper mg/l	0.6	0.7	6.5%
Manganese μg/l	10.2	9.3	−8.8%
Molybdenum μg/l	0.1	0.1	20.0%

Table 2 shows the nutritional content comparison of cow's blood, cow's milk, and cow cream (per 100 mL). Cow's blood was reported to have a fat content of 0.3 grams, equal to the carbohydrate content, and a relatively high protein content at 8 grams. The caloric value was low at 35.9 kcal. Cow's blood also contained significant quantities of albumin and globulin, at 3.13 grams and 4.27 grams, respectively. Glucose was present in cow's blood at 43 milligrams, but it had no lactose. Mineral content was modest, with calcium at 10 milligrams and phosphorus at 5 milligrams. Magnesium, sodium, and potassium were present in small amounts, as well as a notable iron content of 161 micrograms. Cow's blood did not have listed values for selenium, iodine, copper, zinc, or the vitamins B1 (thiamine), B2 (riboflavine), B3 (niacine), B6 (pyridoxine), folic acid, B12 (cobalamine), D, E, and K. However, it was rich in vitamin C at 200 milligrams and carotene at 500 milligrams. Hemoglobin was high at 10 grams, and cholesterol and triglycerides were measured at 300 milligrams and 27 milligrams, respectively.

Cow's milk, on the other hand, contained more fat at 4.5 grams and carbohydrates at 5 grams,with proteins at 3.5 grams. It had a higher caloric value than blood at 74.5 kcal. Albumin was present but at a lower level of 0.5 grams, with no globulin. Glucose was almost negligible at 0.1 milligrams, while lactose was high at 4.9 grams, reflecting milk's typical sugar content. Mineral content was richer in cow's milk with calcium at 112 milligrams and phosphorus at 60 milligrams. Magnesium, sodium, and potassium levels were higher compared to cow's blood. Iron content was slightly lower at 100 micrograms. Cow's milk was also a source of selenium, iodine, copper, and zinc, as well as vitamins B1, B2, B3, B6, folic acid, B12, A, D, E, and K in varying microgram quantities. Vitamin C was present but minimal. There was no carotene or hemoglobin, and cholesterol was low at 10 milligrams, but triglycerides were significantly higher at 4300 milligrams.

Cow's cream was the richest in fat at 30 grams and had a significant caloric value at 294 kcal. It had similar carbohydrate content to cow's blood but lower protein content at 3 grams. No albumin or globulin was detected in the cream. Lactose was present at 3 grams, and the mineral content was slightly lower than milk's with calcium at 80 milligrams and phosphorus at 60 milligrams. Other minerals were also present in moderate amounts. Cow's cream had slightly more iron than milk at 110 micrograms. The vitamin content was similar to milk's but with higher values for vitamins A and E. No carotene or hemoglobin was present. Cream's cholesterol was higher than milk's at 113 milligrams, and it had the highest triglyceride level at 28000 milligrams.

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Table 2. Comparison of nutrient composition of Cow's blood, Cow's Milk, and Cow's Cream.

Nutrient	Cow's Blood	Cow's Milk	Cow's Cream
Fat (g)	0.3	4.5	30.0
Carbohydrates (g)	0.3	5.0	3.0
Proteins (g)	8.0	3.5	3.0
kcal	35.9	74.5	294.0
Albumin (g)	3.1	0.5	0.0
Globulin (g)	4.3	0.0	0.0
Glucose (mg)	43.0	0.1	0.0
Lactose (g)	0.0	4.9	3.0
Calcium (mg)	10.0	112.0	80.0
Phosphorus (mg)	5.0	60.0	60.0
Magnesium (mg)	2.6	10.0	9.0
Sodium (mg)	126.0	50.0	30.0
Potassium (mg)	27.0	130.0	100.0
Iron (μg)	161.0	100.0	110.0
Selenium (μg)		4.0	4.0
Iodine (μg)		13.0	9.0
Copper (mg)	0.7	0.1	0.0
Zinc (mg)		0.1	0.3
Thiamine (μg)		50.0	30.0
Riboflavine (μg)		150.0	150.0
Niacine (μg)		200.0	300.0
Pyridoxine (μg)		50.0	30.0
Folic Acid (μg)		10.0	10.0
Cobalamine (μg)		0.5	0.0
Vitamin A (μg)	35.0	40.0	360.0
Vitamin D (μg)		0.1	1.0
Vitamin E (μg)		500.0	900.0
Vitamin K (μg)		2.0	30.0
Vitamin C (mg)	200.0	0.1	1.0
Carotene (mg)	500.0	0.0	0.0
Hemoglobin (g)	10.0	0.0	0.0
Cholesterol (mg)	300.0	10.0	113.0
Triglycerides (mg)	27.0	4300.0	28 000.0

As elucidated through Table 3, on the first day, only cow's blood was ingested, amounting to 250 milliliters. The following day saw an increase in consumption with 1000 milliliters of cream and a slight decrease in cow's blood intake to 240 milliliters; no raw milk was consumed. By the third day, the subject had 850 milliliters of cream and reduced the cow's blood to 100 milliliters. The consumption pattern changed over the days; for instance, on the fourth day, cream intake was recorded at 500 milliliters with no cow's blood or raw milk consumed. The fifth and sixth days noted high cream intakes of 1300 and 800 milliliters, respectively, without any cow's blood or raw milk. On the seventh day, the subject reintroduced raw milk into their diet with a substantial 1600 milliliters, alongside 1000 milliliters of cream, while still abstaining from cow's blood. Throughout the study, the amounts aried significantly. On the eighth day, for instance, the subject consumed 800 milliliters of cream, 300 milliliters of cow's blood, and 1500 milliliters of raw milk. On the ninth day, cream intake dropped to 200 milliliters, cow's blood increased to 400 milliliters, and raw milk decreased to 200 milliliters. In the second half of the study, the consumption continued in a similar fluctuating manner. On the tenth day, there was a high intake of cream at 1800 milliliters, 280 milliliters of cow's blood, and 1000 milliliters of raw milk. By the eleventh day, these figures changed to 860 milliliters

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of cream, 200 milliliters of cow's blood, and 1400 milliliters of raw milk. The pattern of consumption kept changing, with some days like the 14th having lower intake amounts across all three substances—300 milliliters of cream, 30 milliliters of cow's blood, and 100 milliliters of raw milk. On the 15th day, the subject consumed the highest amount of cream recorded in the study, reaching 2100 milliliters, alongside 200 milliliters of cow's blood and 100 milliliters of raw milk. As the study approached its end, the amounts remained high but less variable. For example, on the 22nd day, the subject had 1700 milliliters of cream, 200 milliliters of cow's blood, and 600 milliliters of raw milk. The final day, the 17th of February, showed a consumption of 1000 milliliters of cream and a notable 1750 milliliters of raw milk, with no cow's blood ingested.

Table 3. Daily intake of cream, cow's blood and raw milk.

Day	Date	Cream (ml)	Cow's Blood (ml)	Raw Milk (ml)
1	19.01.24	0.0	250.0	0.0
2	20.01.24	1000.0	240.0	0.0
3	21.01.24	850.0	100.0	0.0
4	22.01.24	500.0	0.0	0.0
5	23.01.24	1300.0	0.0	0.0
6	24.01.24	800.0	0.0	0.0
7	25.01.24	1000.0	0.0	1600.0
8	26.01.24	800.0	300.0	1500.0
9	27.01.24	200.0	400.0	200.0
10	28.01.24	1800.0	280.0	1000.0
11	29.01.24	860.0	200.0	1400.0
12	30.01.24	450.0	150.0	800.0
13	31.01.24	500.0	100.0	1600.0
14	01.02.24	300.0	30.0	100.0
15	02.02.24	2100.0	200.0	100.0
16	03.02.24	1450.0	150.0	0.0
17	04.02.24	1500.0	250.0	0.0
18	05.02.24	1700.0	350.0	1300.0
19	06.02.24	800.0	200.0	0.0
20	07.02.24	1600.0	300.0	0.0
21	08.02.24	1700.0	300.0	0.0
22	09.02.24	1700.0	200.0	600.0
23	10.02.24	500.0	250.0	0.0
24	11.02.24	1100.0	250.0	0.0
25	12.02.24	1200.0	300.0	0.0
26	13.02.24	1200.0	300.0	0.0
27	14.02.24	1200.0	300.0	0.0
28	15.02.24	1500.0	200.0	0.0
29	16.02.24	1500.0	200.0	0.0
30	17.02.24	1000.0	0.0	1750.0

4. Discussion

We observed a significant increase in homocysteine levels by 81.9%, which suggests an alteration in methylation processes and potential deficiencies in B-vitamins. The Maasai-inspired diet, while rich in certain nutrients, may lack adequate amounts of B-vitamins, particularly B6, B12, and methylfolate, which are crucial cofactors in the methylation cycle and homocysteine metabolism. Despite the presence of B-vitamins in cow's milk and blood, the bioavailability or the quantity consumed may have been insufficient to prevent an increase in homocysteine. We also noted a dramatic decrease in MDA-LDL levels by 67.9%, indicative of reduced lipid peroxidation and possibly decreased oxidative stress. This finding correlates with the high antioxidant content, particularly vitamin C and carotene, present in cow's blood, which may confer a protective effect against oxidative damage to lipids. The subject reported feeling significantly more energetic, which can be correlated with the 24.9% increase in free testosterone. This hormonal change is likely a result of the high fat content and nutrients in the diet which are known to support steroidogenesis, thus enhancing overall vitality and energy levels. Regarding pancreas elastase, the study did not yield direct measurements. However, the restricted protein intake from the exclusive consumption of cow's blood and milk might have led to less demand on the pancreas to secrete elastase, as the diet's protein components are relatively low compared to typical Western diets high in meat. In terms of inflammation, calprotectin levels were not directly measured; however, the unchanged CRP levels indicate no significant change in the systemic inflammatory response. This result can be seen as surprising given the significant dietary changes, but it suggests that the diet might not have induced an inflammatory state, at least not in the acute phase reactant measured. The sharp increase in I-FABP by 224.2% raises concerns aboutintestinal integrity, possibly indicating enhanced intestinal permeability, commonly referred to as 'leaky gut.' This finding could be attributed to the dietary changes impacting gut mucosa or changes in gut flora due to the unique composition of the diet. Additionally, the altered levels of lactobacillus and bifidobacterium may be associated with the low lactose content of the prepared cream and the overall low carbohydrate nature of the diet. Since these bacteria typically ferment carbohydrates to produce energy, their populations within the gut might have been affected by the limited substrate availability. In the study by Chege et al. [37], cultural practices were found to influence dietary habits among Maasai children, emphasizing consumption of cereals and legumes over animal products due to nomadism, wealth symbolism, and social customs. This is in contrast to our case report, which involved a diet rich in animal products. The study highlighted the limited access to diverse foods and potential nutritional deficiencies due to cultural food taboos and practices, which could lead to less optimal health outcomes compared to the subject in our case report who had access to animal products. Houghton et al. [52] found a high prevalence of anemia and iron deficiency among Maasai children, attributed to high consumption of cow's milk and chronic inflammation. This finding contrasts with our case report, where iron levels decreased dramatically but were offset by an increase in ferritin, suggesting a different adaptive response or acute-phase reaction to the diet. The increased consumption of cow's milk in the Maasai children's diet, as noted by Houghton et al., could explain the iron deficiency, whereas the subject in our case report experienced a decrease in iron levels despite consuming a diet including cow's blood, which is typically high in iron. Knoll et al. [28] described the Maasai diet as rich in saturated fatty acids (SFAs) and low in polyunsaturated fatty acids (PUFAs), with significant consumption of milk and ugali (Thick maize flour porridge.). The findings from our case report also indicated a high intake of SFAs through the consumption of cream and a reduction in LDL cholesterol levels, which differs from what might be expected given the high SFA content. The study by Knoll et al. [28] did not, however, report on the detailed biochemical profile changes that were observed in our case report. Wagh et al. [29] provided genetic insights into the Maasai population, suggesting a genetic adaptation for cholesterol homeostasis and lactase persistence despite a diet high in lactose, fat, and cholesterol. This genetic component may explain the low levels of blood cholesterol and low incidence of gallstones and cardiac diseases among the Maasai, which contrasts with the findings of our case report, where cholesterol levels decreased significantly. The subject in our case report did not necessarily reflect these genetic adaptations, suggesting that the observed biochemical changes may be more related to the dietary intervention than intrinsic genetic factors. The study by Christensen et al. [26] found that physical activity energy expenditure (PAEE) was high among rural Kenyan adults, especially in the Maasai and Kamba populations. Their results align with our findings in terms of CRP levels, which remained unchanged, suggesting that the high levels of physical activity in the Maasai might contribute to an anti-inflammatory state. However, unlike our subject, who experienced an increase in LDL cholesterol, the Maasai in the study by Mbalilaki et al. [27] showed a favorable lipid profile despite a high-fat diet. This discrepancy could be due to the extremely high energy expenditure reported for the Maasai, which may help in lipid metabolism and maintenance of a healthier lipid profile, a factor not addressed in our case report. Further, the research by Mbalilaki et al. [27] highlighted that the Maasai have low rates of coronary heart disease, and despite their high-fat diet, they have a high level of physical activity that contributes to their energy expenditure. In our case report, the subject's diet, which included cow's blood, cow's cream, and raw milk, and resulted in improved kidney function and a significant decrease in markers of oxidative stress (MDA-LDL), could suggest a protective effect, albeit these changes were not explicitly linked to physical activity levels or cardiovascular outcomes. Mann et al. [24] observed extensive atherosclerosis in the Maasai population but few complicated lesions. They posited that physical fitness, which causes coronary vessels to be more capacious, may protect the Maasai from the consequences of their atherosclerosis. This could provide context to our findings, where despite the dietary intake of high cholesterol and saturated fats, the subject may have benefited from protective mechanisms against cardiovascular disease, such as increased vessel size or improved antioxidative capacity, suggested by the decreased MDA-LDL. Our findings showed a complex relationship between diet, biochemical markers, and health outcomes. While we observed improvements in certain markers such as liver enzymes and kidney function, we also identified potential areas of concern, such as the increase in homocysteine levels. These results contrast with the studies mentioned, which did not report such biochemical changes, but instead focused on macro-level health outcomes like physical activity levels, energy expenditure, and observable cardiovascular health. The findings from our study exhibited a complex response to a diet that included cow's blood, cow's cream, and raw milk over a 30-day period. The dietary pattern was characterized by substantial fluctuations in intake and led to various biochemical changes. Contrarily, the Maasai of East Africa, as reported by Biss et al. [25], maintained low serum cholesterol levels despite a high-fat diet, which contrasts with the increased blood glucose and slightly elevated triglyceride levels observed in our subject. Our findings did not indicate a similar efficient negative feedback mechanism regulating cholesterol biosynthesis as seen in the Maasai, which could be attributed to genetic differences or long-term dietary adaptation that the Maasai may have developed. The study by Biss et al. [25] also highlighted the Maasai's unique serum protein patterns and high levels of serum IgA, which were not measured or reported in our case. The presence of a double alpha2 band and higher IgA levels might suggest a genetic or adaptive component to the Maasai's diet that was not reflected in our subject's profile. Notably, the Maasai's high phospholipid to cholesterol and bile acid to cholesterol ratios in their gallbladder bile could explain the absence of cholesterol gallstones, a condition not assessed in our study. Wilhelmsen et al. [53] observed that Maasais had a higher incidence of subjective health complaints compared to Norwegians, despite their proximity to nature and presumed healthier lifestyle. Our study did not measure subjective health complaints; however, the changes in biochemical markers, such as the increase in homocysteine levels, which is a risk factor for cardiovascular diseases, might suggest potential health complaints if the dietary patterns were to continue. The work of Orech et al. [30] provided an insight into the Maasai's use of indigenous medicinal plants in their diet, which could have contributed to their historically low incidences of metabolic diseases. Our study did not include such plant additives, which could have played a role in mitigating some of the negative changes observed, such as the increase in LDL/HDL ratio or the decrease in certain micronutrients. In comparison, our study's subject showed a decrease in liver enzymes, an increase in kidney function, and a significant decrease in oxidative stress markers like MDA-LDL, which are positive findings not directly comparable with the mentioned studies due to differences in the diet composition, lifestyle, and genetic makeup of the populations. Therefore, while the Maasai's diet is high in fat, their unique biological adaptations, reflected in various studies, have allowed them to maintain a favorable lipid profile and avoid certain metabolic diseases [25,30]. Elevated dietary cholesterol intake has been implicated in the increase of serum cholesterol levels and specifically the elevation of low-density lipoprotein cholesterol, a known risk factor for atherogenesis and consequent cardiovascular pathologies, including myocardial infarction and cerebrovascular accidents [54]. Cholesterol from dietary sources is present in two forms: unesterified cholesterol and cholesterol esters. The digestion of fats is initiated by pancreatic enzyme activity, which is stimulated following food consumption and results in the release of these enzymes into the small intestine [32]. The enzymatic action leads to the hydrolysis of triglycerides into free fatty acids and glycerol, and similarly, cholesterol esters are broken down into unesterified cholesterol and fatty acids. Concurrently, gallbladder contraction—induced by cholecystokinin released from the duodenal mucosa—promotes bile secretion, which is essential for the formation of mixed micelles. These micelles facilitate the transport of lipophilic substances such as free fatty acids, unesterified cholesterol, and plant sterols to the absorption sites within the intestine [33]. Within the enterocytes, these absorbed lipids are predominantly re-esterified and incorporated into chylomicrons. The chylomicrons enter the lymphatic system and undergo transformation into chylomicron remnants through the action of Lipoprotein Lipase, which catalyzes the hydrolysis of triglycerides back into free fatty acids [55]. Free fatty acids are liberated from chylomicrons, while chylomicron remnants, which are smaller and denser than the original chylomicrons, are taken up by the liver and potentially by other tissues, including macrophages. Alongside oxidized low-density lipoprotein, these remnants have been identified as contributors to the formation of atherosclerotic plaques within coronary arteries. The liver plays a pivotal role in the regulation of cholesterol balance, hosting a series of interconnected biochemical processes [56]. Chylomicron remnants are processed within the liver; triglycerides and a fraction of cholesterol esters contained within are mobilized and incorporated into very low-density lipoprotein particles [33]. These particles are subsequently released into the bloodstream. The action of lipoprotein lipase on very low-density lipoprotein particles facilitates their conversion into low-density lipoprotein particles, which may be re-absorbed by hepatic cells or by other cell types such as macrophages. Cholesterol from low-density lipoprotein particles merges with the hepatic cholesterol pool, where it can be utilized in the synthesis of bile acids or secreted into the bile [34]. The liver is also involved in the uptake of high-density lipoprotein particles or their cholesterol content, which are synthesized in peripheral tissues. Cholesterol from high-density lipoprotein is primarily directed towards bile secretion [36]. In the bile, cholesterol is integrated into mixed micelles composed of bile acids and phospholipids. The gallbladder serves as a storage site for bile, with the majority being held during nocturnal periods and between meals [35]. After the ingestion of food, biliary cholesterol is mixed with dietary cholesterol, which represents only a portion of the total cholesterol flux within the intestine prior to absorption. It is estimated that the daily transit of biliary cholesterol through the intestine is two to four times that of dietary cholesterol [31]. Our study, while elucidating several effects of a Maasai-inspired diet on various health biomarkers, was not without limitations. A primary constraint was the study's design as a single-subject case study, which inherently lacks statistical power and generalizability. The absence of a control group meant that the results could not be compared against a baseline of individuals consuming a standard diet, thereby limiting the ability to draw causal inferences from the observed changes. Another limitation was the short duration of the dietary intervention, spanning only 30 days. This temporal scope is insufficient to assess the long-term health outcomes or to capture any chronic physiological adaptations that may arise from sustained consumption of such a diet. Moreover, the variable intake of cow's blood, cow's cream, and raw milk could have introduced confounding variability in the results, complicating the establishment of dose-response relationships. On an overall basis, our findings underscored the considerable physiological adaptations to an unconventional dietary regimen. While the short-term implications highlighted alterations in metabolic and nutritional status, the long-term health effects remain unknown, necessitating further longitudinal and comprehensive research. The study's outcomes could inform nutritional science by contributing to a more nuanced understanding of the relationship between diet and health, especially in the context of traditional dietary practices.

5. Conclusion

We found that the 30-day Maasai-inspired diet of cow's blood, cream, and milk led to changes in metabolic health, such as improved liver function and lipid profiles. Despite these potential benefits, a rise in homocysteine levels indicated possible cardiovascular risks, and changes in mineral levels raised concerns about the diet's nutritional adequacy. Stable inflammatory markers suggested no acute inflammation, while increased testosterone and I-FABP levels indicated hormonal shifts and potential gut health issues, respectively. While some results were promising, the need for further research on long-term effects and broader nutritional implications was emphasized.

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