Axis Journal of Agriculture and Biological Sciences

THE RELATIONSHIP BETWEEN DIETARY INTAKE OF GRASS-FED VERSUS GRAIN-FED BEEF AND PLASMA LEVELS OF ANTI-INFLAMMATORY FATTY ACIDS: A CROSS-SECTIONAL STUDY

(Original_Article)

Authors

Names	Description	Orcids
Rabia Saleem	M.Phil- Zoology, University of Sargodha, Pakistan. Rabiasaleem187@gmail.com	0009-0004-1282-8013
Noman Shafique	Final Year Student at University of Veterinary and Animal Sciences Lahore, Pakistan. nomanshafique230@gmail.com	
Hina Maqbool	Dietitian, Dept Nutrition and Dietetics, Hamdard University, Pakistan. Dt.hiinna@gmail.com	0009-0005-3029-7487

Acknowledgement: The authors express sincere gratitude to all participants for their valuable cooperation throughout the study.

Corresponding Author: Rabia Saleem, M.Phil- Zoology, University of Sargodha, Pakistan, Rabiasaleem187@gmail.com

Abstract

Background: The fatty acid composition of beef varies according to cattle feeding practices, influencing its potential impact on human health. Grass-fed beef contains higher levels of omega-3 fatty acids and conjugated linoleic acid (CLA), which are known for their anti-inflammatory properties. Understanding how these compositional differences affect human plasma lipid profiles can help guide dietary recommendations and livestock management practices.

Objective: To compare the effects of grass-fed and grain-fed beef consumption on plasma levels of omega-3 fatty acids and CLA in adults from South Punjab, Pakistan.

Methods: This cross-sectional study, conducted over eight months, enrolled 60 adults who were habitual consumers of either grass-fed (n=30) or grain-fed (n=30) beef. Habitual consumption was defined as intake at least three times per week for a minimum of six months. Usual dietary intake was assessed using a validated food frequency questionnaire. Fasting blood samples were analyzed via gas chromatography to determine plasma fatty acid concentrations. Results are presented as mean ± standard deviation. Independent samples t-tests were used to compare groups, and Pearson correlation was used to assess relationships between beef consumption frequency and plasma fatty acid levels.

Results: Participants consuming grass-fed beef had significantly higher plasma concentrations of total omega-3 fatty acids (76.8 ± 11.2 µg/mL vs. 57.0 ± 9.8 µg/mL, $p = 0.002$) and conjugated linoleic acid (CLA) (15.4 ± 3.7 µg/mL vs. 10.7 ± 3.1 µg/mL, $p = 0.005$) compared to the grain-fed group. The omega-6 to omega-3 ratio was significantly lower in the grass-fed consumer group (4.1 ± 1.1 vs. 6.3 ± 1.5, $p = 0.001$). In the study population, beef consumption frequency was positively correlated with plasma total omega-3 ($r = 0.62$, $p = 0.001$) and CLA ($r = 0.58$, $p = 0.003$) concentrations.

Conclusion: Grass-fed beef consumption was associated with improved plasma omega-3 and CLA profiles and a lower omega-6 to omega-3 ratio, suggesting a beneficial influence on anti-inflammatory lipid status.

Keywords: Adults, Beef, Conjugated Linoleic Acid, Cross-Sectional Studies, Diet, Fatty Acids Omega-3, Lipids.

Introduction

Beef is a key food worldwide, providing excellent protein, vitamins, and essential fats. However, its nutritional value isn't fixed; a cow's own diet has a major impact. Public and scientific curiosity is growing about how feeding methods—grass-fed versus grain-fed—change the beneficial fats in the meat that are crucial for our health. Of special interest are omega-3 fats and conjugated linoleic acid (CLA), known for fighting inflammation, protecting the heart, and aiding metabolism (1). This leads to a central question: does choosing grass-fed or grain-fed beef actually change the fats circulating in our blood, especially the anti-inflammatory ones? What cattle eat directly shapes their meat's fat content. Grass-fed cows eat pasture rich in a compound that converts into long-chain omega-3s like EPA and DHA (2), which help control inflammation and support heart health. Conversely, grain-fed cattle, raised on corn or soy, produce meat higher in omega-6 fats and lower in omega-3s. The balance between omega-6 and omega-3 fats in our diet is vital for managing inflammation. A high ratio, typical in Western diets, is tied to higher chronic disease risk, while a more balanced ratio—potentially achieved by eating grass-fed products—could be protective (3).

Beyond omega-3 fatty acids, CLA is another lipid molecule of notable interest. It is a naturally occurring trans fatty acid found predominantly in the meat and milk of ruminants, known for its potential anti-inflammatory, anti-carcinogenic, and anti-atherogenic properties (4). Studies have shown that grass-fed beef typically contains higher levels of CLA compared to grain-fed beef, largely due to differences in ruminal biohydrogenation processes influenced by the animal's diet. These biochemical variations translate into measurable differences in the fatty acid composition of the final product and, potentially, in the plasma lipid profiles of consumers. However, despite numerous studies examining the compositional differences in beef itself, far fewer have explored how these variations manifest in the human body following consumption under real-world dietary conditions (5). The biological significance of these differences may extend well beyond simple nutritional labeling. Omega-3 fatty acids and CLA influence inflammatory pathways through modulation of eicosanoid synthesis, alteration of cytokine production, and incorporation into cell membranes, thereby affecting gene expression and signal transduction. Plasma levels of these fatty acids are considered reliable biomarkers of dietary intake and metabolic status, offering an objective measure of nutritional exposure. Yet, much of the existing evidence has relied on controlled feeding trials or animal models, while real-world human data—particularly from cross-sectional observational studies—remain comparatively scarce. This gap limits our understanding of how typical dietary patterns involving grass-fed versus grain-fed beef consumption affect circulating anti-inflammatory lipid profiles in free-living individuals (6).

Moreover, the growing consumer demand for grass-fed beef is often driven by perceptions of superior health benefits, animal welfare, and environmental sustainability (7). However, scientific validation of these health claims, particularly at the metabolic and biochemical level, remains incomplete. While compositional analyses consistently demonstrate differences in fatty acid content between the two types of beef, it is less clear whether these differences are significant enough to produce measurable impacts on human plasma lipid markers. Discrepancies across existing studies may be attributed to differences in study design, feeding duration, beef preparation, and baseline dietary habits of participants. Consequently, a clearer understanding of how consumption of grass-fed versus grain-fed beef relates to circulating levels of omega-3 and CLA is crucial for substantiating or refuting commonly held beliefs about the nutritional advantages of grass-fed meat. The importance of this line of research lies not only in its implications for individual dietary choices but also for broader public health and agricultural policy. If grass-fed beef consumption is associated with higher plasma levels of anti-inflammatory fatty acids, this could support recommendations for more sustainable and health-oriented livestock production systems (8). Conversely, if differences are minimal in physiological outcomes, it may suggest that other dietary and lifestyle factors exert a stronger influence on systemic fatty acid profiles than the source of beef alone. Understanding these nuances is essential to develop evidence-based nutrition guidance that balances human health benefits with environmental and economic considerations. In light of these perspectives, the present study aims to investigate the relationship between dietary intake of grass-fed and grain-fed beef and plasma concentrations of key anti-inflammatory fatty acids, including omega-3 and CLA, in adult participants. By employing a cross-sectional study design, this research seeks to compare how variations in cattle farming practices translate into measurable differences in human lipid profiles (9).

The objective is to elucidate whether habitual consumption of grass-fed beef confers a distinct advantage in promoting higher circulating levels of beneficial fatty acids, thereby contributing to a deeper understanding of the nutritional and health implications of beef production systems.

Methods

This cross-sectional study was conducted over an eight-month period in South Punjab, Pakistan, to compare the plasma concentrations of anti-inflammatory fatty acids, specifically omega-3 and conjugated linoleic acid (CLA), between consumers of grass-fed and grain-fed beef. The research aimed to evaluate how regular dietary intake of these different beef types influences human lipid profiles in free-living adults. A total of 60 participants were enrolled through local health centers and community nutrition programs, divided equally into a group of habitual grass-fed beef consumers (n = 30) and a group of habitual grain-fed beef consumers (n = 30). Eligible participants were adults aged 25–55 years who consumed beef at least three times per week for a minimum of six months. Exclusion criteria included the presence of chronic diseases (such as diabetes, cardiovascular disease, or inflammatory disorders), current use of lipid-lowering or omega-3 supplements, pregnancy, lactation, and adherence to restrictive diets (e.g., vegetarian or ketogenic). Participants with recent illness, surgery, or excessive alcohol consumption were also excluded. Written informed consent was obtained prior to enrollment.

Dietary assessment was conducted using a validated semi-quantitative food frequency questionnaire (FFQ) designed to capture beef consumption frequency, portion size, and preparation method. A trained nutritionist guided each participant to ensure accuracy in reporting. Additional data on age, gender, body mass index (BMI), smoking status, and physical activity were collected. Blood samples were taken from participants after they had fasted overnight for 10–12 hours. About 10 mL of blood was collected in special tubes and spun in a centrifuge to separate the plasma, which was then frozen at −80°C for later testing. The fatty acids were extracted from the plasma using a standard laboratory technique (the Folch method) and chemically treated to make them easier to analyze. We used a gas chromatograph (GC-FID) with a specialized column to measure these processed fats. Specific fatty acids, including EPA, DHA, ALA, and CLA, were identified and measured by matching them against known reference samples. All results were recorded as the concentration of each fatty acid in the plasma, in units of micrograms per milliliter (µg/mL). All analyses were performed in duplicate for quality assurance, with internal standards applied to correct for extraction and measurement variability. Quality control samples were analyzed intermittently to ensure reproducibility.

All data were processed using SPSS software (version 26). We described the basic features of our participants using summary statistics. Independent sample t-tests were used to compare the average plasma concentrations of omega-3 fatty acids and CLA between the grass-fed and grain-fed beef consumer groups. Pearson correlation analysis was used to examine the connections between the frequency of beef consumption and the concentrations of these fatty acids in the blood. We first confirmed that our data followed a normal distribution using the Shapiro-Wilk test. For all analyses, a p-value of less than 0.05 was considered statistically significant. The primary outcome measures were plasma omega-3 fatty acid (EPA, DHA, ALA) and CLA concentrations, while the omega-6/omega-3 ratio served as a secondary outcome.

Results

The study involved 60 total participants, split evenly into a group of 30 habitual grass-fed beef consumers and 30 habitual grain-fed beef consumers. When we compared the starting characteristics of both groups—such as their age, gender, BMI, smoking status, and activity levels—we found no significant statistical differences ($p > 0.05$). This confirms that the two groups were well-matched and comparable at the outset of the study (Table 1).

Plasma fatty acid analysis revealed significant variations in omega-3 fatty acid concentrations between the two groups. Mean plasma eicosapentaenoic acid (EPA) levels were higher in grass-fed beef consumers (24.6 ± 5.3 µg/mL) compared to grain-fed consumers (17.2 ± 4.8 µg/mL; p = 0.001). Similarly, docosahexaenoic acid (DHA) concentrations were greater in the grass-fed group (39.8 ± 6.1 µg/mL) than in the grain-fed group (30.5 ± 5.7 µg/mL; p = 0.003). Alpha-linolenic acid (ALA) levels were also elevated in grass-fed consumers (12.4 ± 3.2 µg/mL) relative to the grain-fed group (9.3 ± 2.9 µg/mL; p = 0.021). The total plasma omega-3 fatty acid concentration demonstrated a significant difference between the two groups, averaging 76.8 ± 11.2 µg/mL in the grass-fed group and 57.0 ± 9.8 µg/mL in the grain-fed group (p = 0.002) (Table 2, Figure 1).

Analysis of conjugated linoleic acid (CLA) and related lipid markers revealed that grass-fed beef consumers had markedly higher plasma CLA levels (15.4 ± 3.7 µg/mL) compared with grain-fed consumers (10.7 ± 3.1 µg/mL; p = 0.005). Conversely, total trans fatty acid concentrations were slightly higher in the grain-fed group (10.1 ± 2.6 µg/mL) compared to the grass-fed group (8.2 ± 2.3 µg/mL; p = 0.024). The omega-6 to omega-3 ratio, a recognized indicator of inflammatory balance, was significantly lower in the grass-fed group (4.1 ± 1.1) than in the grain-fed group (6.3 ± 1.5; p = 0.001), suggesting a more favorable fatty acid composition in individuals consuming grass-fed beef (Table 3, Figure 2).

Correlation analysis demonstrated positive associations between the frequency of beef consumption and plasma fatty acid concentrations. Weekly consumption frequency showed a moderate-to-strong correlation with total plasma omega-3 levels (r = 0.62, p = 0.001) and with CLA concentrations (r = 0.58, p = 0.003), indicating that higher intake of beef, particularly grass-fed, was associated with increased circulating anti-inflammatory lipids (Table 4).

Overall, these results indicated distinct differences in plasma lipid profiles between consumers of grass-fed and grain-fed beef. The grass-fed group consistently exhibited higher levels of omega-3 fatty acids and CLA, along with a lower omega-6/omega-3 ratio, whereas the grain-fed group showed a lipid pattern more indicative of pro-inflammatory potential. The observed trends were statistically significant across all major outcome variables, confirming a measurable biochemical impact of cattle feeding practices on human fatty acid composition.

Variable	Grass-fed Group (n=30)	Grain-fed Group (n=30)	p-value
Age (years)	38.2 ± 7.5	39.7 ± 8.1	0.56
Gender (Male/Female)	16 / 14	17 / 13	0.79
BMI (kg/m²)	24.6 ± 2.8	25.4 ± 3.2	0.34
Smokers (%)	13.3	16.7	0.62
Physical activity (hrs/week)	5.8 ± 2.1	5.1 ± 2.4	0.41

Parameter	Grass-fed Group	Grain-fed Group	p-value
EPA (µg/mL)	24.6	17.2	0.001
DHA (µg/mL)	39.8	30.5	0.003
ALA (µg/mL)	12.4	9.3	0.021
Total Omega-3 (µg/mL)	76.8	57	0.002

Parameter	Grass-fed Group	Grain-fed Group	p-value
CLA (µg/mL)	15.4	10.7	0.005
Total Trans Fatty Acids (µg/mL)	8.2	10.1	0.024
Omega-6/Omega-3 Ratio	4.1	6.3	0.001

Variable	r-value	p-value
Beef Consumption Frequency vs Total Omega-3	0.62	0.001
Beef Consumption Frequency vs CLA	0.58	0.003

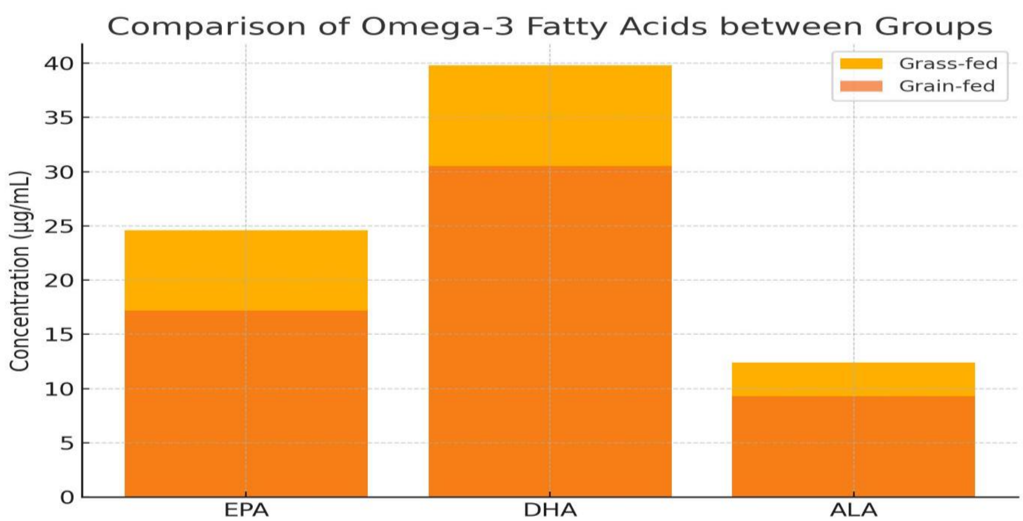

Figure 1Comparison of Omega-3 Fatty Acid Between Groups

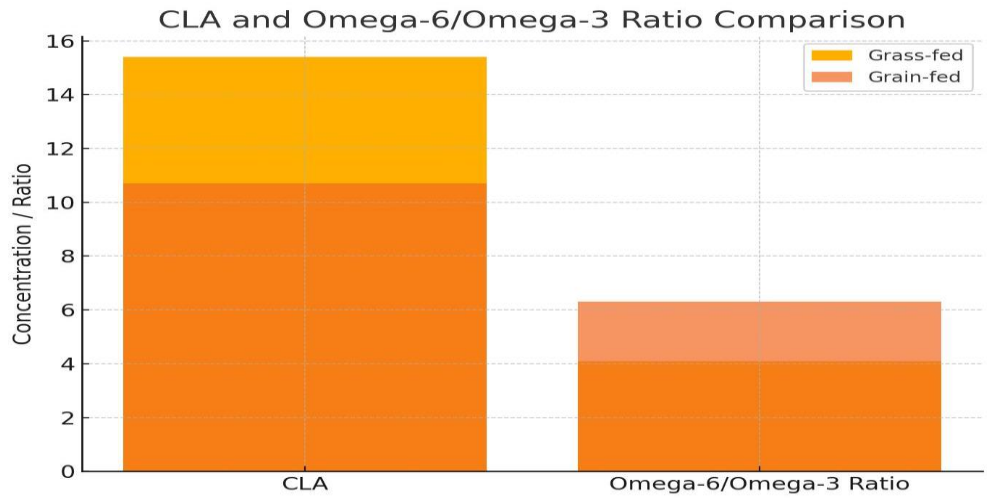

Figure 2 CLA and Omega-6/Omega-3 Ratio Comparison

Discussion

The findings of this study demonstrated that habitual consumption of grass-fed beef was associated with significantly higher plasma levels of omega-3 fatty acids and conjugated linoleic acid (CLA), along with a lower omega-6 to omega-3 ratio compared to grain-fed beef consumers. These results provide meaningful biochemical evidence that dietary differences originating from cattle feeding practices can translate into measurable variations in human lipid profiles (10). The outcomes supported the hypothesis that the nutritional quality of beef, particularly regarding its fatty acid composition, is strongly influenced by the type of feed provided to the animals and can impact human anti-inflammatory lipid status. The elevated levels of eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and α-linolenic acid (ALA) observed among grass-fed beef consumers reflected the well-established fatty acid composition of pasture-fed livestock. Grass-fed cattle diets are naturally rich in α-linolenic acid, which serves as a precursor for long-chain omega-3 fatty acid synthesis. In contrast, grain-based diets commonly result in higher omega-6 fatty acid deposition, thus diminishing the overall omega-3 content of the meat. The present findings paralleled earlier compositional analyses of beef that demonstrated superior omega-3 content and a more favorable omega-6/omega-3 ratio in grass-fed beef. By confirming that these compositional differences are reflected in human plasma, this study bridged the gap between food composition research and human nutritional biochemistry, emphasizing the physiological relevance of agricultural practices (11). The significantly higher plasma CLA levels in grass-fed beef consumers provided further support for the nutritional advantage of forage-based feeding systems. CLA has been recognized for its potential roles in modulating lipid metabolism, reducing inflammation, and improving immune function. Since CLA synthesis in ruminants depends on the availability of linoleic acid and the ruminal microbial environment, forage-fed cattle generally produce higher CLA concentrations. The higher plasma CLA concentrations among grass-fed beef consumers thus indicated more effective incorporation of these beneficial fatty acids into human metabolism, underscoring the biochemical benefits of naturally raised livestock (12).

The lower omega-6 to omega-3 ratio among grass-fed consumers suggested a shift toward an anti-inflammatory lipid profile. An imbalance in this ratio, often driven by excessive intake of omega-6-rich processed foods, has been associated with increased risk of chronic inflammatory conditions such as cardiovascular disease and metabolic syndrome (13). The results of this study implied that even moderate dietary modifications, such as substituting grain-fed beef with grass-fed alternatives, could contribute to restoring a healthier lipid balance. This finding held public health importance in regions where red meat forms a significant part of the diet, providing a practical nutritional strategy to improve inflammatory biomarkers without necessitating major dietary overhauls. The positive correlations between beef consumption frequency and plasma omega-3 and CLA levels indicated that regular dietary intake directly influenced circulating fatty acid concentrations (14). This dose-response relationship strengthened the biological plausibility of the findings, suggesting that consistent exposure to grass-fed beef contributes to cumulative improvements in plasma lipid quality. However, the modest correlation strength also suggested that other dietary sources, individual metabolic differences, and lifestyle factors likely influenced the overall fatty acid profile, reflecting the complex interplay between diet and metabolism. A key strength of this study was its real-world, community-based design, which allowed for the assessment of naturally occurring dietary habits rather than controlled feeding interventions. This enhanced the ecological validity of the findings and provided insights relevant to everyday dietary behaviors. Additionally, the use of direct biochemical markers of fatty acid status rather than relying solely on self-reported intake strengthened the reliability of the results. The analytical precision of gas chromatography ensured accurate quantification of lipid fractions, minimizing measurement bias. The inclusion of both omega-3 and CLA profiles provided a comprehensive view of the anti-inflammatory lipid spectrum influenced by beef consumption (15).

Nonetheless, several limitations must be acknowledged. The relatively small sample size limited the generalizability of the results and restricted the ability to perform subgroup analyses by gender, age, or other demographic factors (16). The cross-sectional design precluded establishing causal relationships, as dietary intake and plasma lipid profiles were measured simultaneously. Variability in beef preparation methods, portion sizes, and concurrent dietary components could have influenced the results despite efforts to standardize dietary data collection (17). Furthermore, the study relied on self-reported dietary information, which is inherently subject to recall bias and underreporting. The exclusion of other dietary lipid sources such as fish or plant-based omega-3s also limited the ability to fully isolate the effect of beef-derived fatty acids on plasma levels. Despite these constraints, the findings provided strong preliminary evidence supporting the nutritional benefits of grass-fed beef in enhancing anti-inflammatory fatty acid profiles (18). Future studies with larger and more diverse populations, longitudinal designs, and controlled dietary interventions are needed to validate these results and explore the clinical implications in terms of inflammatory biomarkers and disease risk. Advanced lipidomic analyses may further elucidate the mechanistic pathways linking dietary fatty acids to systemic inflammation and metabolic health (19). The present study demonstrated that individuals who habitually consumed grass-fed beef exhibited superior plasma omega-3 and CLA profiles compared to grain-fed beef consumers. These findings underscored the significance of livestock feeding practices in shaping the nutritional value of beef and, consequently, in influencing human biochemical health markers. Promoting grass-fed beef as part of a balanced diet could represent a simple yet effective approach to improving lipid-mediated health outcomes, particularly in populations with high red meat consumption (20).

Conclusion

This research found that people who regularly eat grass-fed beef had notably higher blood levels of beneficial omega-3 fats and conjugated linoleic acid (CLA), as well as a better omega-6 to omega-3 balance, compared to those eating grain-fed beef. This demonstrates that what cattle eat directly shapes the health value of the beef we consume. Encouraging grass-fed beef in the diet could therefore be a practical approach to support a healthier, more anti-inflammatory fat profile, potentially improving heart health and metabolic wellness for people.

AUTHOR CONTRIBUTION

Author	Contribution
Rabia Saleem *	Designed the study, performed data collection and analysis, and prepared the manuscript. Approved the final draft for submission.
Noman Shafique	Contributed to study design, data acquisition, interpretation of findings, and performed critical review and editing of the manuscript. Approved the final draft for submission.
Hina Maqbool	Significantly contributed to data collection and analysis. Reviewed and approved the final manuscript for publication.

References

1. Krusinski L. Impact of Finishing Diet and Breed on the Fatty Acid and Phytochemical Profile of Grass-Finished Beef: Michigan State University; 2023.

2. Statham TE. From Pasture to Plate: Striking an Omega Balance Between Grass-Fed and Grain-Fed Beef Ribeyes-Fatty Acid Composition, Minerals, Soil, And Forage Analysis. 2024.

3. Mkhwebane E, Mokgobu I, Nkosi D, Bekker JJAJoF, Agriculture, Nutrition, Development. A GLOBAL PERSPECTIVE ON THE INFLUENCE OF GRASS-FED CATTLE IN RELATION TO MEAT SAFETY AND QUALITY: A REVIEW. 2025;25(3).

4. Ponnampalam EN, Priyashantha H, Vidanarachchi JK, Kiani A, Holman BWJA. Effects of nutritional factors on fat content, fatty acid composition, and sensorial properties of meat and milk from domesticated ruminants: an overview. 2024;14(6):840.

5. Evans N, Cloward J, Ward RE, van Wietmarschen HA, van Eekeren N, Kronberg SL, et al. Pasture-finishing of cattle in Western US rangelands improves markers of animal metabolic health and nutritional compounds in beef. 2024;14(1):20240.

6. Jeong HY, Moon YS, Cho KKJFsoar. ω-6 and ω-3 polyunsaturated fatty acids: Inflammation, obesity and foods of animal resources. 2024;44(5):988.

7. Prates JAJN. The role of meat lipids in nutrition and health: Balancing benefits and risks. 2025;17(2):350.

8. Krusinski L, Maciel IC, van Vliet S, Ahsin M, Lu G, Rowntree JE, et al. Measuring the phytochemical richness of meat: Effects of grass/grain finishing systems and grapeseed extract supplementation on the fatty acid and phytochemical content of beef. 2023;12(19):3547.

9. Villaverde MS, Menghini M, Martínez MF, DiLorenzo N, Bravo RD, Arelovich HMJAF. Interconnection between pastures, grazing ecosystem, animal welfare, meat quality, and human health. 2025;15(5):39-46.

10. Kataria A, Hanuman B, Sharma R. Potential of functional lipids: production, properties, and applications. Novel and Alternative Methods in Food Processing: Apple Academic Press; 2023. p. 253-85.

11. Doppenberg J, Van der Aar P. Facts about fats: A review of the feeding value of fats and oils in feeds for swine and poultry. 2023.

12. Bromm JJ, Tokach MD, Woodworth JC, Goodband RD, DeRouchey JM, Hastad CW, et al. Effects of increasing omega-3 fatty acids on growth performance, immune response, and mortality in nursery pigs. 2024;8:txae002.

13. KATARIA A, HANUMAN B, SHARMA RJN, Alternative Methods in Food Processing: Biotechnological P, Approaches M. PRODUCTION, PROPERTIES, AND. 2023:253.

14. Modi Z, Dubey K, Salunke PJD. Characterization of Fatty Acids and Nutritional Health Indicators of Ghee (Butteroil) Manufactured from Bovine Colostrum and Sweet Cream. 2025;6(1):2.

15. Cîrstea N, Nour V, Boruzi AIJF. Effects of pork backfat replacement with emulsion gels formulated with a mixture of olive, chia and algae oils on the quality attributes of pork patties. 2023;12(3):519.

16. Daboussi I, Fehri NE, Contò M, Castrica M, Bejaoui S, Quattrone A, et al. Growth Performance, Carcass Traits and Meat Quality in Rabbits Fed with Two Different Percentages of Extruded Linseed. 2025;14(10):1778.

17. Pena OMP. Novel Protected Gelatin Capsules Containing Fish Oil Mitigated the Effect of Milk Fat Depression and Reduced Rumen Degradation Compared to Untreated Capsules: Clemson University; 2023.

18. Melo N. First Foods: Indigenous Nutrition for Modern Inflammatory Conditions: Ancient Wisdom for Modern Healing: Nouridin Melo; 2025.

19. Schwerdtfeger J, Görs S, Dannenberger D, Kuhla BJA. Replacing Soybean Meal with Hemp Leaves in a Dairy Cow Diet: Plasma Antioxidative Capacity, Inflammatory Parameters and Milk Constituents. 2025;15(10):1414.

20. Nascimento EM, Silva TM, Garcez Neto AF, Reis FB, Santos ÉBL, Silva VA, et al. Composition, Fatty Acids Profile, Antioxidant Capacity, and Phenolic Compounds of Saanen Goats Milk Fed on Dehydrated Grape Pomace.