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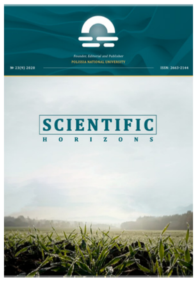

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Use of poultry in the production of high-quality baby food products: Literature review

Moldir Kurmanakhynova*
Doctoral Student
Almaty Technological University
050012, 100 Tole bi Str., Almaty, Republic of Kazakhstan
https://orcid.org/0009-0003-6544-1472

Gulshat Zhaksylykova
PhD in Technical Sciences, Associate Professor
Almaty Technological University
050012, 100 Tole bi Str., Almaty, Republic of Kazakhstan
https://orcid.org/0000-0003-0563-4304

Talgat Kulazhanov
Doctor of Technical Sciences, Professor
Almaty Technological University
050012, 100 Tole bi Str., Almaty, Republic of Kazakhstan
https://orcid.org/0000-0001-8984-0011

Lyazzat Baybolova
Doctor of Technical Sciences, Professor
Almaty Technological University
050012, 100 Tole bi Str., Almaty, Republic of Kazakhstan
https://orcid.org/0000-0002-8118-1581

Sholpan Abzhanova
PhD in Technical Sciences, Associate Professor
Almaty Technological University
050012, 100 Tole bi Str., Almaty, Republic of Kazakhstan
https://orcid.org/0000-0003-3209-6855

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Abstract. Poultry meat and eggs are important components of baby food due to the high biological value of protein, rich content of essential amino acids, minerals and vitamins necessary for the normal development of the child's body. This review aimed to systematically assess the nutritional and technological potential of poultry meat and eggs for use in the production of high-quality baby food. A content analysis of 51 peer-reviewed scientific sources published between 2012 and 2024 was conducted to

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**Corresponding author*

synthesise data on the amino acid composition, digestibility, and processing characteristics of chicken and turkey meat, as well as poultry eggs. The analysis showed that turkey meat contained up to 31.65% protein and only 4.55% fat, indicating its value as a lean protein source. Chicken breast muscle provided 9,872.7 ± 465.09 mg of essential amino acids per 100 g, while turkey breast offered 115.3 mg/100 g. Eggs demonstrated a high proportion of essential amino acids (over 43% of the total amino acid content) and were identified as a key dietary source of choline important for early cognitive development. The review also evaluated traditional and modern processing methods, including pasteurisation, sterilisation, lyophilisation, hydrothermal treatment, and non-thermal technologies such as pulsed electric field, radio frequency heating and ultrasound. It was found that modern methods such as PEF and lyophilisation preserved up to 97% of vitamins and reduced microbial loads by 5-6 log without significantly altering nutritional value. The findings underscored the importance of selecting appropriate processing technologies to preserve both the safety and nutritional quality of poultry-based baby foods

Keywords: biological value; processing technologies; amino acid composition; food safety; complementary foods

INTRODUCTION

Rational baby food is one of the key components of a child's healthy development. According to O.O. Gorach and Y.V. Istomina (2024), the growing number of food allergies, metabolic disorders and the need for optimal nutritional balance necessitate careful quality control of products for children. The authors emphasised that current trends in baby food should prioritise products with high bioavailability of nutrients and minimum content of potential allergens. Poultry and eggs are attracting considerable attention from researchers as a source of high-quality protein, which is important for the growth and development of a child's body. In particular, N. Kondratiuk *et al.* (2022) note that poultry meat is substantial in the nutritional balance of young people's diets, as it contains complete protein, a range of essential amino acids, trace elements, and is highly digestible.

However, traditional methods of heat treatment can significantly reduce the content of thermolabile vitamins and trace elements in poultry meat and eggs (Szeląg-Sikora *et al.*, 2024). N. Pasdar *et al.* (2024) emphasise that modern non-thermal technologies, such as pulsed electric field, high pressure and ultrasonic processing, can minimise the loss of beneficial nutrients in baby food. The authors stated that such processing methods can increase the bioavailability of protein and reduce the risk of undesirable chemical compounds that occur during traditional heat treatment. Similarly, S. Baizhanova *et al.* (2023) addressed the introduction of innovative technologies in the production of functional foods that contribute to improving their composition and safety. In particular, the authors analysed the prospects of bioactive additives and modification of the texture of meat to increase its digestibility by young children.

The issue of the safety of poultry products also attracts the attention of researchers. M. Abenova *et al.* (2021) analysed the safety indicators of poultry meat produced in farms and small farms and identified possible risks of microbiological contamination. The authors recommend improving quality control methods and introducing effective food safety inspection systems to reduce the risk of contamination with pathogenic microorganisms. At the same time, S.A. Kozhabayeva and N.T. Sartanova (2021) highlights the development of turkey meat production in Kazakhstan as a promising source of food proteins. The authors demonstrated that turkey meat contains more essential amino acids compared to chicken and has a lower cholesterol level, which makes it suitable for baby food.

In terms of exporting poultry products, A. Ibyzhanova *et al.* (2022) explored the opportunities of the international market and the issue of product compliance with international standards. The authors noted that one of the key factors for successful exports is the introduction of modern technologies for maintaining the quality and safety of poultry meat, which is especially important for baby food. Additionally, A.Z. Temirbekova *et al.* (2024) analysed the role of probiotics and biological products in improving the quality of poultry products, which can have a positive impact on the final product for baby food. The authors argued that the use of probiotic cultures in poultry feeding contributes to the nutritional value of meat and its microbiological safety. The importance of food proteins, particularly poultry and eggs, in children's diets is emphasised in the recommendations of the World Health Organization (2023), which has developed guidelines for complementary foods for children aged 6-23 months. These guidelines emphasise the need to ensure that children's diets contain sufficient levels of protein and essential micronutrients. The global increase in the consumption of commercially available formula milk, which is changing the food systems for infants and young children, was noted by P. Baker *et al.* (2021).

Despite numerous studies on the nutritional value of poultry meat and eggs, there is no systematic assessment of the impact of different processing methods on the preservation of essential elements in infant food production. This study examined the amino acid composition and nutritional value of poultry products, as well as the impact of modern and traditional processing methods on the preservation of essential nutrients necessary for infant development.

A thorough content analysis of 51 peer-reviewed sources published from 2012 to 2024 was conducted. The emphasis was on empirical studies and expert assessments of the chemical composition, safety standards and processing technologies of poultry products used in infant food. The main focus was on chicken and turkey meat due to its prevalence, better digestibility, and favorable protein to fat ratio. The study did not take into account unconfirmed, outdated or unverified information, instead focusing on interdisciplinary perspectives from nutrition science, food technology and public health. The information was systematised using thematic content analysis, categorising the literature by nutritional value, microbiological safety, and processing. This method allowed us to formulate a science-based understanding of ideal processing technologies to improve the nutritional value and safety of poultry baby food.

NUTRITIONAL VALUE OF POULTRY MEAT AND EGGS IN BABY FOOD

Poultry meat and eggs are central in children's nutrition due to their nutritional value, which is determined by the presence of a protein of high biological value, essential amino acids, trace elements and vitamins necessary for the normal growth and development of children. According to scientific research, poultry meat, in particular chicken, is a source of protein with a high biological value due to its good ratio of essential amino acids (Kucheruk & Zasekin, 2020) (Table 1). The composition of amino acids in poultry meat meets the needs of the child's body, ensuring the optimal functioning of various systems and organs, including the muscular and nervous systems (Abylgazinova *et al.,* 2023).

Table 1. *Amino acid composition of breast and thigh muscles of chickens (mg per 100 g of product)*

Amino acid	Chest muscles	Thigh muscles
Essential amino acids	9,872.7 ± 465.09	8,338.60 ± 50.60
Valine	959.00 ± 11.30	795.20 ± 8.20
Isoleucine	1,012.20 ± 19.60	741.30 ± 8.50
Leucine	1,573.10 ± 29.00	902.00 ± 18.00
Lysine	1,744.00 ± 35.50	1,374.10 ± 4.10
Methionine	524.10 ± 8.20	457.10 ± 8.10
Threonine	899.90 ± 17.50	809.20 ± 7.50
Tryptophan	321.10 ± 12.80	215.10 ± 4.30
Phenylalanine	813.00 ± 14.20	906.40 ± 17.10
Arginine	1,420.50 ± 23.70	1,600.40 ± 13.70
Histidine	605.80 ± 14.70	537.80 ± 8.50
Essential amino acids	11,261.60 ± 193.9	9,461.70 ± 25.70
Alanine	1,380.60 ± 25.10	1,424.10 ± 5.60
Aspartic acid	2,013.30 ± 36.60	1,635.40 ± 15.00
Glycine	1,474.50 ± 19.00	1,314.70 ± 14.00
Glutamic acid	3,500.40 ± 122.50	2,710.50 ± 24.00
Proline	1,053.90 ± 21.70	924.10 ± 6.00
Serine	913.30 ± 11.50	734.40 ± 5.50
Tyrosine	695.70 ± 19.10	528.30 ± 6.10
Cystine	180.10 ± 8.40	134.40 ± 2.00
Oxyproline	49.80 ± 2.30	55.80 ± 1.20
The sum of all amino acids	2,134.30 ± 160.7	17,800.30 ± 63.8

Source: *compiled by the authors based on M. Kucheruk and D. Zasekin (2020)*

Following the table, chicken meat contains important essential amino acids such as leucine, lysine, methionine and threonine, which are essential for the normal development of children. Leucine and lysine promote muscle growth and recovery, methionine is important for normalising metabolic processes, and threonine maintains healthy skin and tissues. An important feature is also the high content of glutamic and aspartic acids, which are important for maintaining the functions of the central nervous system and ensuring energy metabolism in the body (Abylgazinova *et al.,* 2023). Due to the optimal balance of these amino acids, chicken meat is a valuable component of baby food that ensures the proper development and maintenance of all body systems, including the muscular and nervous systems.

The amino acid composition of turkey meat, in particular breast and thigh muscles, demonstrates a high level of essential amino acids, which makes this product suitable for inclusion in the diet of infant food (Table 2). Turkey meat is characterised by a high content of lysine (20.83 mg/100 g in breast muscles and 16.35 mg/100 g in thigh muscles), leucine (18.65 mg/100 g and 14.91 mg/100 g, respectively), as well as amino acids important for the growth and development of a child, such as valine, threonine and methionine (Czech *et al.,* 2024). The absence of significant fat content, especially in the pectoral muscles, makes turkey an easily digestible and low-calorie source of protein, which normalises children's nutrition. The high level of essential amino acids, such as histidine and isoleucine, confirms the biological value of turkey meat for children who need high-quality and balanced protein sources for normal physical development.

Table 2*. Amino acid composition of turkey breast and thigh muscles (mg per 100 g of product)*

Amino acid	Chest muscles	Thigh muscles
Histidine (His)	13.26	6.21
Isoleucine (Ile)	10.44	7.94
Leucine (Leu)	18.65	14.91
Lysine (Lys)	20.83	16.35
Methionine (Met)	6.57	5.07
Cysteine (Cys)	2.55	2.35
Phenylalanine (Phe)	9.61	7.90
Threonine (Thr)	13.21	10.77
Valine (Val)	11.29	8.74
Tryptophan (Trp)	8.86	8.49
The sum of essential amino acids	115.3	88.71
Aspartic acid (Asp)	24.31	19.11
Serine (Ser)	8.77	7.52
Glutamic acid (Glu)	39.58	34.47
Proline (Pro)	11.65	15.07
Glycine (Gly)	8.65	9.53
Alanine (Ala)	12.16	11.10
Tyrosine (Tyr)	10.47	7.10
Arginine (Arg)	14.94	12.28
The sum of essential amino acids	130.5	116.2
Sum amino acids	245.8	204.9

Source: *compiled by the authors based on A. Czech et al. (2024)*

The protein concentration in chicken meat can reach 22%, which makes it one of the main components of the protein part of children's diets. The nutritional properties of chicken are determined not only by its composition but also by its low-fat content (compared to other types of meat, such as beef), which makes chicken meat easy for children to digest (Table 3). In addition, the fat content of chicken depends on the part of the chicken: for example, chicken breast meat contains significantly less fat than thighs, which should also be taken into account when formulating a diet for children (Barbut & Leishman, 2022). Turkey meat is also a valuable source of protein, with a concentration of up to 31.65%, which is biologically complete, as its composition meets the body's need for all amino acids.

Table 3*. Chemical composition of chicken and turkey meat*

Indicators	Chicken	Turkey
Water, %	71.14 ± 0.11	74.24 ± 2.15
Mineral substances, %	1.98 ± 0.02	1.31 ± 0.15
Protein, %	20.11 ± 0.12	31.65 ± 1.63
Lipids, %	7.60 ± 0.1	4.55 ± 0.21
Calorific value, kJ	620	701.03 ± 29.62

Source: *compiled by the authors based on M. Kucheruk and D. Zasekin (2020), R. Feduniak and R. Peleno (2024)*

Poultry produces 70-95 g of body protein from 100 g of animal protein. Turkey meat is lower in fat than chicken, especially in the thigh muscles, making it an even more dietary option. Due to its high protein and low-fat content, turkey meat is recommended for baby food as it contributes to the normal growth and development of the body by providing essential amino acids and minerals (Gautron *et al.,* 2022). Eggs, in turn, are another essential source of protein and important nutrients in baby food. They contain proteins of high biological value, as they contain all essential amino acids in the appropriate proportion for a child's body (Table 4). Egg protein is highly digestible, making it an important component for the development of tissues and organs in children.

***Table 4**. Amino acid composition of chicken and turkey eggs (mg per 100 g of product)*

Amino acid	Chicken egg	Turkey egg
Glutamine (Glu)	1.285 ± 0.086	1.335 ± 0.057
Asparagine (Asp)	1.110 ± 0.072	1.127 ± 0.051
Leucine (Leu)	0.916 ± 0.058	0.995 ± 0.041
Serine (Ser)	0.697 ± 0.042	0.734 ± 0.030
Alanine (Ala)	0.662 ± 0.043	0.606 ± 0.032
Valine (Val)	0.631 ± 0.040	0.624 ± 0.030
Methionine (Met)	0.624 ± 0.042	0.653 ± 0.043
Phenylalanine (Phe)	0.592 ± 0.036	0.599 ± 0.033
Lysine (Lys)	0.570 ± 0.038	0.626 ± 0.029
Arginine (Arg)	0.545 ± 0.036	0.504 ± 0.023
Isoleucine (Ile)	0.514 ± 0.029	0.575 ± 0.026
Threonine (Thr)	0.473 ± 0.032	0.593 ± 0.024
Proline (Pro)	0.420 ± 0.061	0.418 ± 0.075
Tyrosine (Tyr)	0.380 ± 0.023	0.473 ± 0.025
Glycine (Gly)	0.350 ± 0.022	0.395 ± 0.016
Histidine (His)	0.224 ± 0.015	0.241 ± 0.015
Essential Amino Acids (EAA)	4.32 ± 0.26	4.66 ± 0.21
Total Amino Acid Content (TAA)	9.99 ± 0.61	10.50 ± 0.45
EAA/TAA (%)	43.23 ± 0.42	44.44 ± 0.44

***Source:** compiled by the authors based on C. Sun et al. (2019)*

Recent research addressed choline, an important nutrient found in eggs. Choline is essential for brain development, in particular for the formation of nerve cell membranes, and for the normal functioning of the liver. Studies show that choline can help improve cognitive function, which is important for child development, particularly in early childhood (2-6 years), when brain structures are actively forming (Gautron *et al.,* 2022). However, excessive heat treatment of eggs can lead to the loss of some nutrients. In particular, high temperatures can reduce the biological value of protein and decrease the choline content.

Thus, chicken and turkey meat, as well as their eggs, are important components of children's diets due to the high biological value of protein, and the presence of essential amino acids and trace elements. They not only support normal growth and development but also contribute to the health of the nervous system, cognitive function and overall strengthening of the immune system.

THE IMPACT OF INDUSTRIAL PROCESSING METHODS ON PRODUCT QUALITY AND SAFETY

Pasteurisation and sterilisation are the key methods of heat treatment of meat products used in the production of baby food. Pasteurisation involves heating the product to a temperature of 60-85°C to kill pathogens while retaining essential nutrients such as proteins, fats and vitamins. It minimises the loss of thermolabile substances, such as B vitamins, making it the optimal method for baby food (Gorach & Istomina, 2024). Sterilisation is characterised by a higher temperature treatment (110-135°C), which ensures the destruction of all microorganisms, including spore forms of bacteria. However, such intensive heat treatment can cause changes in the structure of proteins and a decrease in the level of certain trace elements, such as vitamin C and folic acid. To minimise the negative impact, gentle sterilisation modes are used, such as ultra-high temperature (UHT) treatment, which involves short-term heating to 135°C for several seconds. Modern industrial technologies compensate for possible losses of nutrients by using enriched formulations. In addition, the combination of sterilisation and vacuum packaging extends the shelf life of products without the use of preservatives, which is critical for baby food safety (Gorach & Istomina, 2024).

Freeze-drying is a modern method of processing meat products that ensures maximum preservation of nutritional value. The process involves freezing the product at ultra-low temperatures (-40°C and below), followed by removing moisture under vacuum. This avoids the thermal destruction of nutrients and preserves the natural structure of proteins. The advantage of lyophilisation is the preservation of up to 97% of vitamins and minerals, which makes it ideal for the production of dry infant formula. For instance, compared to conventional drying, this process allows for the retention of more iron, zinc and magnesium, which are critical for the development of the baby. In addition to preserving nutritional value, freeze-dried products have a long shelf life without the need for preservatives (Iakubchak *et al.*, 2024). It is also easy to use, as the products quickly regain their texture when liquid is added, making it easy to adapt them to different age groups of children. Hydrothermal processing of meat includes cooking, braising and steaming, which can significantly improve its digestibility (Borsolyuk & Verbytskyi, 2023). The basic principle behind this method is the use of hot water or steam to break down connective tissue and reduce anti-nutritional factors such as purines and glycosaminoglycans.

In the industrial production of baby food, vacuum cooking at low temperatures (sous vide) is widely used to preserve the protein structure as much as possible and prevent the loss of water-soluble vitamins. This method ensures uniform heat treatment without the formation of carcinogenic compounds, which can be observed in traditional frying or baking. Hydrothermal treatment also helps to increase the bioavailability of minerals such as calcium and phosphorus, which are vital for the growth of children's bone systems. Combining this method with a pre-enzymatic treatment (e.g. using natural enzymes) can further increase the digestibility of proteins and micronutrients. The use of non-thermal processing methods in baby food made from poultry meat is becoming increasingly important due to their ability to preserve product quality, nutritional value and safety. Among the most promising technologies are pulsed electric field (PEF), radio frequency heating (RF) and ultrasonic processing (US). These methods can significantly reduce microbiological risks and preserve bioactive compounds, which is especially important for baby food, as they minimise the formation of undesirable thermal by-products and contaminants (Pasdar *et al.,* 2024).

The PEF is one of the most effective non-thermal technologies used for the disinfection of liquid and semi-solid products, including purees and emulsions based on poultry meat. PEF is based on the generation of high-voltage pulses that cause electroporation of the cell membranes of pathogenic microorganisms, leading to their death. Compared to traditional thermal pasteurisation, PEF ensures better preservation of food proteins, vitamins and bioactive components, which is critical for ensuring optimal growth and development of infants. Studies demonstrated that the use of PEF at 35-40 kV/cm with a pulse duration of 2-4 μs effectively reduces the level of Salmonella enterica and Listeria monocytogenes in products by 5-6 log (Pasdar *et al.,* 2024). RF heating is another promising technology based on heating a product using electromagnetic radiation in the 1-300 MHz range. Compared to traditional heating, which is conducted by thermal conduction, RF creates an even temperature distribution throughout the product, which prevents local overheating and preserves the sensory characteristics of the product. In baby food made from poultry meat, RF technology can be used for rapid pasteurisation or sterilisation without significant changes in the structure of proteins and fats. At optimal parameters (40-50 MHz, 55-60°C, 5 min), RF provides a 5-log reduction in pathogenic microorganisms while maintaining the taste and microstructure of the product (Pasdar *et al.,* 2024).

US is another method that is being actively investigated for use in the production of baby food. High-frequency waves (20-100 kHz) contribute to the destruction of microbial cell membranes and improve mass transfer processes in products. Studies demonstrated that sonication with an intensity of 10-20 W/cm² significantly improves the rheological characteristics of meat emulsions and reduces the level of microbial contamination by 3-4 log. In addition, the combined use of ultrasound and antimicrobial agents, such as organic acids or essential oils, can significantly increase the efficiency of disinfection of baby food products (Pasdar *et al.,* 2024). In general, non-thermal processing technologies are a promising alternative to traditional pasteurisation and sterilisation methods in the production of baby food from poultry meat. They can achieve a high level of microbial safety while maintaining the quality, taste and nutritional value of the product. Further research in this area should address the optimisation of process parameters and the development of combined approaches to improve processing efficiency.

USE OF POULTRY PRODUCTS IN THE PRODUCTION OF BABY FORMULA AND SPECIALITY PRODUCTS

Poultry-based products, such as purees, soups and minced meat, are widely used in the diets of infants and young children. They are a source of high-value protein, iron and B vitamins, which are essential for normal growth and development (Zand *et al.,* 2012). However, studies have shown that these products may contain traces of heavy metals such as cadmium and lead, which require constant monitoring (Mielech *et al.,* 2021). Some commercially available baby meat products contain added thickeners, salt and other additives that may affect their nutritional value (Gasparre *et al.,* 2022). Therefore, consumers should carefully study the composition of products and give preference to certified organic products.

The process of producing finished meat products includes several key stages: raw material selection, heat treatment, homogenisation and packaging. An important aspect is to maintain sterility and control the temperature regime to avoid the development of pathogens (Uazhanova *et al.*, 2024). High-quality products do not contain preservatives, artificial colours or flavours, and their composition is adapted to the needs of children's bodies (Shemet & Hulai, 2023). Ready-to-eat meat products for children are usually available in the form of pasty purees, which makes them easier to eat for infants, or as canned soups and minced meat for use at a later age. A balanced combination of meat with vegetables, cereals and healthy fats is given special attention to ensure a complete diet. In addition, modern processing methods, such as high-temperature pasteurisation and sonication, can improve the microbiological safety of meat products without significant loss of nutrients (Maslin & Venter, 2017).

Eggs are an important source of protein, vitamins A, D, B12, folic acid and choline, which are essential for the cognitive development of children (Yalçin & Yalçin, 2013). Studies confirm that the choline content in eggs contributes to normal brain development and memory in early childhood. In addition, eggs contain biotin, which supports the health of the child's skin, hair and nervous system. Eggs are widely used in the production of infant milk formulas, cereals, biscuits and other complementary foods due to their high nutritional value. Despite their health benefits, eggs contain some of the most common food allergens, including ovomucoid, which remains heat-resistant even after processing. This makes eggs unsuitable for children with hypersensitivity to animal proteins (Maslin & Venter, 2017). Allergic reactions can include rashes, gastrointestinal distress, or even anaphylactic shock, which underlines the need to control their use of specialised baby food. Some studies show that products containing egg components may have elevated fluoride levels if they are made from raw materials obtained from industrial farms with high levels of water mineralisation (Opydo-Szymaczek & Opydo, 2011). Excessive fluoride intake in childhood can cause fluorosis, a disease that affects tooth enamel and bone tissue. Therefore, the quality control of egg products in baby food should be particularly strict, with a mandatory analysis of their mineral composition.

In baby foods, eggs are often used in powdered or pasteurised liquid yolk form, which reduces the risk of salmonella and other bacteria (Katiforis *et al.,* 2021). Pasteurisation, drying or freezing processes help to keep eggs safe, but they can change the structure of the protein, which affects its digestibility. For instance, during heat treatment, some B vitamins, especially riboflavin (B2) and folic acid (B9), can be partially destroyed, which requires additional vitaminisation of baby food. In baby foods, eggs are often used in powdered or pasteurised liquid yolk form, which reduces the risk of salmonella and other bacteria (Katiforis *et al.,* 2021). Pasteurisation, drying or freezing processes help to keep eggs safe, but they can change the structure of the protein, which affects its digestibility. For instance, during heat treatment, some B vitamins, especially riboflavin (B2) and folic acid (B9), can be partially destroyed, which requires additional vitaminisation of baby food. To replace egg components, vegetable emulsifiers (sunflower or soya lecithin) and alternative sources of fats and phospholipids, such as algae oil or fish oil, are used in the production of baby food. In cases of allergy to both types of protein, meat and egg, the child is prescribed specialised therapeutic mixtures based on amino acids. Thus, modern baby food production technologies adapt the composition of products to meet the individual needs of babies, providing them with safe and nutritious food.

MODERN PROCESSING METHODS AND THE SAFETY OF POULTRY AND EGG-BASED PRODUCTS IN INFANT NUTRITION

The results of this study demonstrate that the use of non-thermal methods of processing poultry meat and eggs helps to preserve the nutritional value of products, which is important for ensuring optimal baby food. In particular, the study demonstrated that a pulsed electric field and high pressure minimise the loss of proteins and amino acids, which is consistent with the findings of N. Pasdar *et al.* (2024). At the same time, this contradicts the findings of F. Javed *et al.* (2021), who identified that certain processing methods can cause the formation of undesirable compounds, in particular furan, in baby food products. An important aspect of the analysis is the safety of the final product. O.D. Garuba *et al.* (2024) contribute to the analysis of the health risks arising from heavy metal contamination, which can be critical for the safety of baby food. The findings, which address the nutritional value of poultry and eggs, highlight the importance of food safety and quality, where heavy metal research can serve as an important complement to ensuring safe food for children. This correlates with the study by A. Zergui *et al.* (2023), who noted that eggs and honey can be used to indicate environmental pollution, which potentially affects poultry products. The current study focuses on the nutritional value of eggs, in particular their importance as a source of protein for children. This highlights the importance of controlling heavy metal contamination in eggs, as such toxins can affect children's health and distort their nutritional value.

C. Bozkir *et al.* (2025) determined that most baby food products in the UK do not meet WHO model standards for nutritional composition. This fact underlines the importance of developing new food processing technologies that will improve their quality and compliance with international standards. The study also notes the importance of introducing modern methods of processing meat and eggs, such as pasteurisation, sterilisation and lyophilisation, which help to preserve their nutritional value and ensure product safety, which is important for baby food. S. Li *et al.* (2019) demonstrated that consumer confidence in the safety of baby food significantly affects product choice. Similarly, the results emphasise the importance of transparency in the production process and the need for information support on product processing methods.

The findings of this study also confirm the importance of a balanced diet for children, highlighting that poultry meat, particularly chicken and turkey, is a dietary option due to its low-fat content and high amino acid composition, which contributes to the development and health of children. This is consistent with the study by A.L. Garcia *et al.* (2020), who determined a significant increase in the share of snacks and sweet products in the UK baby food segment, which is consistent with observations on the importance of a balanced diet for children. The results obtained on the safety and quality of poultry and eggs, in particular, indicate the importance of implementing effective processing methods, such as pasteurisation, sterilisation and freeze-drying, which minimise the risk of contamination with harmful substances, particularly heavy metals. These findings confirm the conclusions of P.A. Wester (2017), which emphasise the importance of the Hazard Analysis and Preventive Control (HARPC) system in ensuring the safety of baby food. The author identified potential risks associated with heavy metal contamination, such as cadmium and lead, in poultry-based products. This indicates the need for further improvement of quality standards and their strict observance. M. Herrera *et al.* (2019) investigated the content of aflatoxins and deoxynivalenol in cereal products for infants, finding certain levels of contamination. This study also analysed the content of contaminants and found that modern processing methods, such as pasteurisation and sonication, can minimise the risk of contamination. This confirms that the problem of food contamination is an urgent one that requires further research and monitoring.

The results obtained on the nutritional value of poultry meat and eggs are confirmed in many modern studies, although they reveal some differences. For instance, J.J. Haszard *et al.* (2024) highlight the excessive sugar content of commercial infant foods, which contrasts with the findings of low fat and optimal amino acid composition of poultry meat. This highlights that poultry may be a more suitable option for infant diets than foods that are high in sugar. K.F. da Rocha *et al.* (2021) investigated the impact of ultra-processed foods on children's health, finding high levels of sugar, salt and additives. The results highlight the importance of using natural products, such as poultry and eggs, which can be an alternative to ultra-processed foods. However, in contrast to a study by K.F. da Rocha *et al.,* these results show that modern processing methods, such as freeze-drying and vacuum cooking, can preserve the nutritional value of foods without the use of harmful additives. The results on the nutritional value of poultry meat and eggs are confirmed in many modern studies, although they show some differences. For instance, the study by A. Hässig-Wegmann *et al.* (2024) analysed the attitudes of parents towards commercial infant foods in Germany and determined that parents prefer natural products because of their safety and health benefits. This correlates with the results that emphasise the importance of poultry and eggs as natural sources of protein with high biological value. However, in contrast to A. Hässig-Wegmann *et al.,* the data show that modern industrial processing methods, such as pasteurisation and sonication, can preserve the nutritional value of foods, making them safe and beneficial for children.

ENSURING THE NUTRITIONAL VALUE AND SAFETY OF BABY FOOD THROUGH PROCESSING METHODS AND PROTEIN SOURCES

The study emphasises the importance of safe processing methods, such as pasteurisation and lyophilisation, to maintain product quality and safety. This correlates with research on the need to control the microbiota in the production of foods for children, in particular, D. Stanley and Y. Bajagai (2022) focused on feed safety and gut microbiota development in poultry. This study highlighted how changes in the diet can affect the biochemical composition of meat and its safety for consumption. This is an important aspect, as it is impossible to study the nutritional value of foods without taking into account microbiological factors that can affect the nutritional properties and safety of poultry meat consumed by humans, including children (Zhurenko *et al.*, 2024). The studies by M. Çakmak *et al.* (2024) and Nurliyani *et al.* (2023) analysed the amino acid composition of eggs of different poultry species. The current results, which also emphasise the importance of eggs as a source of protein with high biological value for baby food, correlate with the findings of these authors. The important aspects highlighted in this study are the presence of all the essential amino acids in eggs, which are optimally suited for the development of children.

J. Ullberg *et al.* (2021) emphasise the importance of food safety for children, particularly given the potential for allergic reactions to proteins in poultry and eggs. The current results, regarding the optimal amino acid composition and processing methods, also highlight the importance of ensuring food safety while maintaining nutritional value. Thus, the study results are consistent with the authors' analysis, highlighting the need to consider both nutritional value and safety of foods for children, especially in the context of allergies and sensitivities to certain proteins. E. Arslan *et al.* (2022) analysed the quality of food for children in the context of fast food and traditional meals. This study compares fast food menus for children with traditional dishes, pointing to the need for a balanced diet. The results highlight the need for optimal protein and fat composition of foods for children, such as poultry and eggs. This correlates with the approach of E. Arslan *et al.,* emphasising the importance of healthy foods for children. At the same time, attention to processing methods to preserve nutritional value is an additional important aspect of achieving healthy baby food.

K.J. Moding *et al.* (2024) emphasise the importance of meat in children's diets, in particular, due to the high content of iron and zinc, which are important micronutrients for children's development. This is consistent with the results of the present study, which focuses on the importance of poultry meat as a source of protein and important amino acids for children's development. In addition, A.B. Falowo (2021) also confirms that meat is an important source of minerals such as iron and zinc, which is consistent with the findings on the nutritional value of poultry meat for infant feeding. The results on the importance of protein in children's diets are consistent with the study by H. Kim *et al.* (2020), which provides statistics on protein consumption trends among children and adolescents in the United States, confirming the importance of ensuring the right balance between different protein sources, including poultry, for optimal development. The study established that poultry meat is the optimal choice for baby food, as it is an important source of high-quality protein and amino acids necessary for growth and development. This is confirmed by A. Baviera-Puig *et al.* (2021) in an analysis of the consumption of chicken and turkey meat among consumers in Spain, considering various aspects of dietary lifestyle. The authors demonstrated that the demand for poultry meat, in particular chicken and turkey, remains high due to their benefits as low-fat, high-protein dietary products. At the same time, the food lifestyle study cited by the authors confirms the importance of educating parents about the choice of meat products for children, which also echoes the recommendations for preserving nutritional value during food processing.

S. Mehranfar *et al.* (2020) investigated the relationship between protein intake and anthropometric parameters in children, emphasising the importance of protein diets for the physical development of children, particularly those aged six years. This study reinforces the findings that highlight the importance of the amino acid composition of poultry meat as a source of protein for children. In particular, the findings on the importance of protein for the development of muscles and the nervous system in children are consistent with the results of S. Mehranfar *et al.*, confirming the positive impact of high-protein diets on children's physical growth and health. Thus, the findings are consistent with many current studies, while also revealing some differences that may be explained by specific factors such as processing methods, sources of raw materials or regional characteristics. This highlights the need for further research to better understand the impact of different factors on the quality and safety of baby food.

CONCLUSIONS

The study showed that poultry meat and eggs have high biological value, which makes them important components in the production of baby food. Chicken breast muscle contains 9,872.7 ± 465.09 mg of essential amino acids per 100 g, while turkey breast contains 115.3 mg/100 g, which confirms their effectiveness as excellent protein sources for infants and young children. Turkey meat has higher protein concentration (31.65 ± 1.63%) and lower fat content (4.55 ± 0.21%) compared to chicken (20.11 ± 0.12% and 7.60 ± 0.1%, respectively), confirming its nutritional advantages.

The total amino acid concentration of eggs is 10.50 ± 0.45 mg/100 g in turkey and 9.99 ± 0.61 mg/100 g in chicken, indicating significant nutritional value, with important amino acids accounting for nearly 43% of the total amino acids. Choline content, essential for neurodevelopment, is maintained in pasteurised and freeze-dried forms, but is reduced by excessive heat processing, highlighting the need for technical optimisation. In evaluating processing methods, freeze drying was found to preserve up to 97% of vitamins and minerals, while pulsed electric field treatment at 35-40 kV/cm reduced microbial load by 5-6 log without significant degradation of protein structure. Radiofrequency heating at 40-50 MHz and 55-60°C for 5 min resulted in a significant reduction of pathogens (by 5 log) while maintaining flavor and nutritional quality. Ultrasonic treatment at a power of 10-20 W/cm² reduced microbiological contamination by 3-4 log and improved the rheology of the product, making it suitable for use in infant food formulations.

Based on the results obtained, non-thermal methods should be prioritised in the preparation of poultry-based baby food because of their ability to preserve amino acid composition, vitamin content and microbiological safety. The presence of allergens in eggs and the risk of contamination with heavy metals such as cadmium and lead require strict control of raw materials and continuous monitoring throughout production. The study offers evidence-based recommendations to optimize the use of poultry and egg products in infant nutrition production with a focus on preserving nutrients and ensuring safety through modern technological methods. Subsequent research should be aimed at evaluating the preservation of nutrients when using complex processing technologies and assessing their compliance with international standards for infant nutrition.

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CONFLICT OF INTEREST

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REFERENCES

[1] Abenova, M., Myssayev, A., Kanya, L., & Aldyngurov, D. (2021). Analysis of maternal and infant health indicators in Kazakhstan: 2003-2018. *Open Access Macedonian Journal of Medical Sciences*, 9(E), 1133-1139. doi: 10.3889/oamjms.2021.7042.

[2] Abylgazinova, A.T., Orazov, A.Zh., Stathopoulos, C., Nugmanov, K.S., & Zaidullina, A.S. (2023). Assessment of quality and safety indicators of poultry carcasses produced at the enterprises of the West Kazakhstan region. *Science and Education. Animal Husbandry*, 2(71), 17-24. doi: 10.52578/2305-9397-2023-2-17-24.

[3] Arslan, E., Ozlu, T., Koc, B.M., & Kenger, E.B. (2022). Nutritional quality of kids' fast-food meals: Comparing the kids' menus of fast-food companies and traditional turkish meals in Turkey. *Nutrition Today*, 57(4), 209-216. doi: 10.1097/NT.0000000000000551.
[4] Baizhanova, S., Konarbayeva, Z., & Kaldybekova, Z. (2023). Current trends in the development of functional food industry in the republic of Kazakhstan and abroad. *Izdenister Natiges,* 4(100), 268-277. doi: 10.37884/4-2023/29.
[5] Baker, P., Santos, T., Neves, P.A., Machado, P., Smith, J., Piwoz, E., Barros, A.J.D., Victora, C.G., & McCoy, D. (2021). First-food systems transformations and the ultra-processing of infant and young child diets: The determinants, dynamics and consequences of the global rise in commercial milk formula consumption. *Maternal & Child Nutrition*, 17(2), article number e13097. doi: 10.1111/mcn.13097.
[6] Barbut, S., & Leishman, E.M. (2022). Quality and processability of modern poultry meat. *Animals*, 12(20), article number 2766. doi: 10.3390/ani12202766.
[7] Baviera-Puig, A., Montero-Vicente, L., Escribá-Pérez, C., & Buitrago-Vera, J. (2021). Analysis of chicken and turkey meat consumption by segmentation of Spanish consumers using food-related lifestyle. *Spanish Journal of Agricultural Research*, 19(1), article number e101.
[8] Borsolyuk, L., & Verbytskyi, S. (2023). Scientific basics to develop functional meat pâtés. *Ukrainian Black Sea Region Agrarian Science*, 27(3), 71-79. doi: 10.56407/bs.agrarian/3.2023.71.
[9] Bozkir, C., Esin, K., Threapleton, D., & Cade, J.E. (2025). Evaluating alignment of UK commercial baby food products with the WHO nutrient and promotion profile model. *European Journal of Pediatrics*, 184, article number 128. doi: 10.1007/s00431-025-05971-7.
[10] Çakmak, M., Karatas, F., & Özer, D. (2024). Investigation of amino acids content of different poultry eggs types. *MW Journal of Science*, 1(2), 10-20. doi: 10.5281/zenodo.13349910.
[11] Czech, A., Domaradzki, P., Niedzielak, M., & Stadnik, J. (2024). Nutritional value and physicochemical properties of male and female broad-breasted bronze turkey muscle. *Foods*, 13(9), article number 1369. doi: 10.3390/foods13091369.
[12] da Rocha, K.F., de Araújo, C.R., de Morais, I.L., Padrão, P., Moreira, P., & da S Ribeiro, K.D. (2021). Commercial foods for infants under the age of 36 months: An assessment of the availability and nutrient profile of ultra-processed foods. *Public Health Nutrition*, 24(11), 3179-3186. doi: 10.1017/S1368980021001555.
[13] Falowo, A.B. (2021). A comprehensive review of nutritional benefits of minerals in meat and meat products. *Science Letters,* 9(2), 55-64. doi: 10.47262/SL/9.2.132021010.
[14] Feduniak, R., & Peleno, R. (2024). Organoleptic parameters and chemical composition of turkey meat in the presence of keel "mins". *Scientific Progress & Innovations*, 27(1), 193-198. doi: 10.31210/spi2024.27.01.33.
[15] Garcia, A.L., Curtin, L., Ronquillo, J.D., Parrett, A., & Wright, C.M. (2020). Changes in the UK baby food market surveyed in 2013 and 2019: The rise of baby snacks and sweet/savoury foods. *Archives of Disease in Childhood*, 105(12), 1162-1166. doi: 10.1136/archdischild-2020-318845.
[16] Garuba, O.D., Anglin, J.C., Good, S., Olufemi, S.E., Oyawoye, O.M., & Ayodotun, S. (2024). Evaluation of heavy metals in commercial baby foods. *Archive of Food and Nutritional Science,* 8, 12-20. doi: 10.29328/journal.afns.1001056.
[17] Gasparre, N., Mefleh, M., & Boukid, F. (2022). Nutritional facts and health/Nutrition claims of commercial plant-based infant foods: Where do we stand? *Plants,* 11(19), article number 2531. doi: 10.3390/plants11192531.
[18] Gautron, J., Dombre, C., Nau, F., Feidt, C., & Guillier, L. (2022). Review: Production factors affecting the quality of chicken table eggs and egg products in Europe. *Animal*, 16(1), article number 100425. doi: 10.1016/j.animal.2021.100425.
[19] Gorach, O.O., & Istomina, Y.V. (2024). Modern requirements for production child nutrition. *Taurida Scientific Herald. Series: Technical Sciences*, 1, 134-137. doi: 10.32782/tnv-tech.2024.1.15.
[20] Hässig-Wegmann, A., Hartmann, C., Roman, S., Sanchez-Siles, L., & Siegrist, M. (2024). Beliefs, Evaluations, and use of commercial infant Food: A survey among German parents. *Food Research International*, 194, article number 114933.doi: 10.1016/j.foodres.2024.114933.
[21] Haszard, J.J., Heath, A.L.M., Katiforis, I., Fleming, E.A., & Taylor, R.W. (2024). Contribution of infant food pouches and other commercial infant foods to the diets of infants: A cross-sectional study. *American Journal of Clinical Nutrition*, 119(5), 1238-1247. doi: 10.1016/j.ajcnut.2024.02.030.
[22] Herrera, M., Bervis, N., Carramiñana, J.J., Juan, T., Herrera, A., Ariño, A., & Lorán, S. (2019). Occurrence and exposure assessment of aflatoxins and deoxynivalenol in cereal-based baby foods for infants. *Toxins*, 11(3), article number 150. doi: 10.3390/toxins11030150.
[23] Iakubchak, O.M., Vivych, A.Y., Hryb, J.V., Taran, T.V., Danylenko, S.H. (2024). Production and meat quality of broiler chickens with the use of a probiotic complex of bifidobacteria and lactobacilli. *Regulatory Mechanisms in Biosystems*, 15(3), 477-482. doi: 10.15421/022467.
[24] Ibyzhanova, A., Rustenova, E., Jakupova, A., & Talapbayeva, G. (2022). Food market of the Republic of Kazakhstan: Export opportunities. *Eurasian Journal of Economic and Business Studies*, 65(3), 60-76. doi: 10.47703/ejebs.v3i65.106.

[25] Javed, F., Shahbaz, H.M., Nawaz, A., Olaimat, A.N., Stratakos, A.C., Wahyono, A., Munir, S., Mueen-ud-din, G., Ali, Z., & Park, J. (2021). Formation of furan in baby food products: Identification and technical challenges. *Comprehensive Reviews in Food Science and Food Safety*, 20(3), 2699-2715. doi: 10.1111/1541-4337.12732.
[26] Katiforis, I., Fleming, E.A., Haszard, J.J., Hape-Cramond, T., Taylor, R.W., & Heath, A.L.M. (2021). Energy, sugars, iron, and vitamin B12 content of commercial infant food pouches and other commercial infant foods on the New Zealand market. *Nutrients*, 13(2), article number 657. doi: 10.3390/nu13020657.
[27] Kim, H., Caulfield, L.E., Rebholz, C.M., Ramsing, R., & Nachman, K.E. (2020). Trends in types of protein in US adolescents and children: Results from the national health and nutrition examination survey 1999-2010. *PloS One*, 15(3), article number e0230686. doi: 10.1371/journal.pone.0230686.
[28] Kondratiuk, N., Cherniavska, A., Savchenko, A., Kotov, O., & Karpenko, S. (2022). The role of poultry meat in the nutrient balance food rations for youth. *Bulletin of the National Technical University "KhPI" Series: New Solutions in Modern Technologies*, 3(13), 63-73. doi: 10.20998/2413-4295.2022.03.10.
[29] Kozhabayeva, S.A., & Sartanova, N.T. (2021). Poultry subcomplex of Kazakhstan: Production of turkey meat. *Problems of AgriMarket*, 3, 100-107. doi: 10.46666/2021-3.2708-9991.11.
[30] Kucheruk, M., & Zasekin, D. (2020). Determination of the biological usefulness of organic chicken meat. *Ukrainian Journal of Veterinary Sciences,* 11(1). doi: 10.31548/ujvs2020.01.005.
[31] Li, S., Sijtsema, S.J., Kornelis, M., Liu, Y., & Li, S. (2019). Consumer confidence in the safety of milk and infant milk formula in China. *Journal of Dairy Science*, 102(10), 8807-8818. doi: 10.3168/jds.2019-16638.
[32] Maslin, K., & Venter, C. (2017). Nutritional aspects of commercially prepared infant foods in developed countries: A narrative review. *Nutrition Research Reviews*, 30(1), 138-148. doi: 10.1017/S0954422417000038.
[33] Mehranfar, S., Jalilpiran, Y., Surkan, P.J., & Azadbakht, L. (2020). Association between protein-rich dietary patterns and anthropometric measurements among children aged 6 years. *Nutrition & Dietetics*, 77(3), 359-367. doi: 10.1111/1747-0080.12609.
[34] Mielech, A., Puścion-Jakubik, A., & Socha, K. (2021). Assessment of the risk of contamination of food for infants and toddlers. *Nutrients*, 13(7), article number 2358. doi: 10.3390/nu13072358.
[35] Moding, K.J., Lawless, M.C., Forestell, C.A., Barrett, K.J., & Johnson, S.L. (2024). Prevalence, variety, and iron and zinc content of commercial infant and toddler foods sold in the United States that contain meat. *PloS One*, 19(7), article number e0306490. doi: 10.1371/journal.pone.0306490.
[36] Nurliyani, Erwanto, Y., Rumiyati, & Sukarno, A.S. (2023). Characteristics of protein and amino acid in various poultry egg white ovomucoid. *Food Science and Technology*, 43, article number e101722. doi: 10.1590/fst.101722.
[37] Opydo-Szymaczek, J., & Opydo, J. (2011). Fluoride content of selected infant foods containing poultry or fish marketed in Poland. *Fluoride*, 44(4), 232-237.
[38] Pasdar, N., Mostashari, P., Greiner, R., Khelfa, A., Rashidinejad, A., Eshpari, H., Vale, J.M., Gharibzahedi, S.M.T., & Roohinejad, S. (2024). Advancements in non-thermal processing technologies for enhancing safety and quality of infant and baby food products: A review. *Foods*, 13(17), article number 2659. doi: 10.3390/foods13172659.
[39] Shemet, V., & Hulai, O. (2023). Food additives of natural origin: Short review. *Commodity Bulletin*, 16(1), 6-18. doi: 10.36910/6775-2310-5283-2023-17-1.
[40] Stanley, D., & Bajagai, Y.S. (2022). Feed safety and the development of poultry intestinal microbiota. *Animals*, 12(20), article number 2890. doi: 10.3390/ani12202890.
[41] Sun, C., Liu, J., Yang, N., & Xu, G. (2019). Egg quality and egg albumen property of domestic chicken, duck, goose, turkey, quail, and pigeon. *Poultry Science*, 98(10), 4516-4521. doi: 10.3382/ps/pez259.
[42] Szeląg-Sikora, A., Oleksy-Gębczyk, A., Kowalska-Jarnot, K., Sikora, J., & Stuglik, J. (2024). Development of poultry meat production and consumption levels in the light of environmental sustainability goals. *Lecture Notes in Civil Engineering*, 609 LNCE, 411-418. doi: 10.1007/978-3-031-70955-5_45.
[43] Temirbekova, A.Z., Tekebayeva, Z.B., Begakhmet, A.M., Yevneyeva, D.O., Temirkhanov, A.Z., & Abzhalelov, A.B. (2024). Advancing poultry farming in Kazakhstan: The role of probiotics and biopreparations. *Journal of Biological Research*, 1(3), 9-15. doi: 10.70264/jbr.v1.3.2024.2.
[44] Uazhanova, R., Moldakhmetova, Z., Tungyshbayeva, U., Izteliyeva, R., Amanova, S., Baimakhanov, G., Seksenbay, S., & Sabraly, S. (2024). Ensuring quality and safety in the production and storage of poultry meat. *Caspian Journal of Environmental Sciences*, 22(5), 1271-1277. doi: 10.22124/cjes.2024.8342.
[45] Ullberg, J., Fech-Bormann, M., & Fagerberg, U.L. (2021). Clinical presentation and management of food protein-induced enterocolitis syndrome in 113 Swedish children. *Allergy*, 76(7), 2115-2122. doi: 10.1111/all.14784.
[46] Wester, P.A. (2017). *Hazard analysis and risk based preventative controls: Building a (better) food safety plan*. London: Elsevier. doi: 10.1016/C2016-0-00179-1.
[47] World Health Organization. (2023). *WHO Guideline for complementary feeding of infants and young children 6-23 months of age*. Retrieved from https://iris.who.int/bitstream/handle/10665/373358/9789240081864-eng.pdf?sequence=1.

[48] Yalçin, S.S., & Yalçin, S. (2013). Poultry eggs and child health – a review. *Lohmann Information,* 48(1).
[49] Zand, N., Chowdhry, B.Z., Wray, D.S., Pullen, F.S., & Snowden, M.J. (2012). Elemental content of commercial 'ready to-feed'poultry and fish based infant foods in the UK. *Food Chemistry*, 135(4), 2796-2801. doi: 10.1016/j.foodchem.2012.07.034.
[50] Zergui, A., Boudalia, S., & Joseph, M.L. (2023). Heavy metals in honey and poultry eggs as indicators of environmental pollution and potential risks to human health. *Journal of Food Composition and Analysis*, 119, article number 105255. doi: 10.1016/j.jfca.2023.105255.
[51] Zhurenko, O., Kryvoruchko, D., Zhurenko, V., & Hryshchuk, I. (2024). Autonomic nervous system tone in poultry protein metabolism. *Animal Science and Food Technology*, 15(3), 30-44. doi: 10.31548/animal.3.2024.30.

Використання м'яса птиці у виробництві високоякісних продуктів дитячого харчування: Огляд літератури

Молдір Курманахинова
Докторант
Алматинський технологічний університет
050012, вул. Толе бі, 100, м. Алмати, Республіка Казахстан
https://orcid.org/0009-0003-6544-1472
Гульшат Жаксиликова
Кандидат технічних наук, доцент
Алматинський технологічний університет
050012, вул. Толе бі, 100, м. Алмати, Республіка Казахстан
https://orcid.org/0000-0003-0563-4304
Талгат Кулажанов
Доктор технічних наук, професор
Алматинський технологічний університет
050012, вул. Толе бі, 100, м. Алмати, Республіка Казахстан
https://orcid.org/0000-0001-8984-0011
Ляззат Байболова
Доктор технічних наук, професор
Алматинський технологічний університет
050012, вул. Толе бі, 100, м. Алмати, Республіка Казахстан
https://orcid.org/0000-0002-8118-1581
Шолпан Абжанова
Кандидат технічних наук, доцент
Алматинський технологічний університет
050012, вул. Толе бі, 100, м. Алмати, Республіка Казахстан
https://orcid.org/0000-0003-3209-6855

Анотація. М'ясо птиці та яйця є важливими компонентами дитячого харчування завдяки високій біологічній цінності білка, багатому вмісту незамінних амінокислот, мінеральних речовин і вітамінів, необхідних для нормального розвитку дитячого організму. Метою цього огляду була системна оцінка харчового та технологічного потенціалу м'яса птиці та яєць для використання у виробництві високоякісного дитячого харчування. Для узагальнення даних щодо амінокислотного складу, засвоюваності та технологічних характеристик м'яса курки та індички, а також яєць птиці було проведено контент-аналіз 51 рецензованого наукового джерела, опублікованого в період з 2012 по 2024 роки. Аналіз показав, що м'ясо індички містить до 31,65 % білка і лише 4,55 % жиру, що свідчить про його цінність як джерела нежирного білка. М'язи курячої грудки містять 9 872,7 ± 465,09 мг незамінних амінокислот на 100 г, тоді як грудка індички – 115,3 мг/100 г. Яйця продемонстрували високий вміст незамінних амінокислот (понад 43 % від загального вмісту амінокислот) і були визначені як основне дієтичне джерело холіну, важливого для раннього когнітивного розвитку. В огляді також оцінювалися традиційні та сучасні методи обробки, включаючи пастеризацію, стерилізацію, ліофілізацію, гідротермічну обробку, а також нетермічні технології, такі як імпульсне електричне поле, радіочастотне нагрівання та ультразвук. Було виявлено, що сучасні методи, такі як ПЕП і ліофілізація, зберігають до 97 % вітамінів і зменшують мікробне навантаження в 5-6 разів без істотної зміни поживної цінності. Отримані результати підкреслили важливість вибору відповідних технологій переробки для збереження безпечності та поживної якості дитячого харчування на основі м'яса птиці

Ключові слова: біологічна цінність; технології переробки; амінокислотний склад; безпечність харчових продуктів; додаткові продукти харчування