



HEALTH BENEFITS OF WAGYU BEEF

Introduction

In 2025, the World Wagyu Council (WWC) commissioned a report exploring the health benefits of Wagyu beef. The goal was to highlight the nutritional advantages of this unique meat, presenting it in an easy-to-understand way for both industry and consumers.

Beef as a Source of Essential Nutrients

Beef is a powerhouse of essential nutrients such as protein, iron, zinc, and B vitamins, all of which are crucial for maintaining muscle mass, supporting immune function, and aiding red blood cell production. However, the health effects of beef vary depending on the cut and preparation method. While lean cuts of beef can be a healthy part of a balanced diet, excessive consumption of red meat, especially processed types, has been linked to an increased risk of heart disease, diabetes, and certain cancers (Webb, 2021). It also indicated that moderate beef intake as part of a balanced diet does not adversely affect disease risk factors, especially when the beef is lean and high-quality.

Wagyu Beef: A Special Case

Wagyu beef (Fig. 1) stands out because of its exceptional marbling (MS), namely the fine veins of fat within the meat (Gotoh *et al.*, 2018; Vázquez-Mosquera *et al.*, 2023). This marbling is not just a treat for the taste buds; it also affects the fat composition in ways that may offer health benefits.



Figure 1 Photo of marbled Wagyu beef courtesy of World Wagyu Council members (WWC, 2025).



Wagyu beef has higher levels of oleic acid (omega 9), a type of monounsaturated fat (MUFA) that makes up about 52.9% of its fat content, compared to other beef (Smith *et al.*, 2006; Vázquez-Mosquera *et al.*, 2023). This fat is similar to olive oil and is known for promoting heart health. Oleic acid lowers LDL (bad) cholesterol and raises HDL (good) cholesterol, helping to reduce the risk of cardiovascular disease (CVD) (Sacks *et al.*, 2017; Smith *et al.*, 2020). Wagyu beef's signature tenderness and rich flavour also stems from its high oleic acid content, which lowers the melting point of fat and enhances juiciness (Smith, 2016).

The exceptional marbling (Fig. 2) sets Wagyu apart from other beef types (Oliver *et al.*, 2006; Iida *et al.*, 2015), and breeders focus on this unique quality attribute of beef. Research shows that the fat in Wagyu's marbled beef doesn't raise LDL cholesterol (Adams *et al.*, 2010; Gotoh & Joo, 2016) and offers a heart-healthy balance of omega-6 to omega-3 fatty acids, potentially reducing inflammation (Gotoh & Joo, 2016; Smith, 2016; Vázquez-Mosquera *et al.*, 2023).



Figure 2 Photo indicating the marbling in the ribeye of Wagyu beef courtesy of World Wagyu Council members (WWC, 2025).

Fatty Acids: The Key to Wagyu's Health Benefits

Fatty acids are essential components of fats, which are essential for our body's functions, including cell growth, immune system health, and inflammation control (Clandinin 2000; Webb & O'Neill, 2008). Fatty acids play a key role in energy storage, cell function, and nutrient absorption. These acids come in three main types: saturated,



monounsaturated (MUFA), and polyunsaturated (PUFA). Saturated fats are typically solid at room temperature and are found in animal products, including beef and dairy products. Research suggests that not all saturated fats have the same or negative effect on human health, and their health impact may depend on other factors like diet and individual health. Lauric acid significantly increases high-density lipoprotein (HDL) cholesterol (the good cholesterol), decreasing the total cholesterol: HDL ratio. Myristic (C14:0) and palmitic (C16:0) acids, occurring at roughly 3 and 25% in beef respectively, influence LDL but have a small effect on the total cholesterol: HDL ratio. Stearic acid (C18:0) has a positive impact and has proven to lower LDL (bad) cholesterol. Stearic acid (C18:0) has proven to have a positive effect or a lowering effect of bad cholesterol in beef fat (Nogoy *et al.*, 2022; Shen *et al.*, 2024). The monounsaturated fatty acids in Wagyu beef have proven to increase the good cholesterol in humans, with no effect on the total cholesterol levels (Smith, 2015).

Unsaturated fats found in beef, plant oils and fish, are liquid and are considered heart-healthy due to their role in reducing inflammation and improving cholesterol levels. Wagyu beef contains high levels of beneficial omega-3 and omega-6 fatty acids, which help regulate blood clotting, immune response, and inflammation. Deficiency can lead to symptoms like scaly skin, dermatitis (omega-6 fatty acid), diminished wound healing and growth disturbances (omega-3 fatty acids). Adequate intake may protect against heart diseases and diabetes (DRI, 2002). Wagyu beef is particularly high in oleic acid (Omega 9), a monounsaturated fatty acid, which is beneficial for heart health, and which contributes to the tenderness and flavour of Wagyu beef. Although Wagyu contains some saturated fats, research suggests that its overall fat profile doesn't negatively affect cholesterol levels and could be considered a heart-healthy option when consumed in moderation (Smith *et al.*, 2020).

It is crucial to note that Wagyu beef's high fat level, which is a result of its extremely high oleic acid concentration, is even contributing more to its health benefits. Oleic acid of 50% in Wagyu beef with an intramuscular fat content (IMF) of 30% contributes significantly more to a healthy omega-9 fat consumption, compared to the same 50% oleic acid content in conventional beef with a 2% IMF (Gotoh *et al.*, 2016).

Both saturated and unsaturated fatty acids are vital for the body's function, especially in building cell membranes and providing energy. Polyunsaturated fats, like omega-3 and omega-6, are essential for brain, heart, and immune system health, aiding cell fluidity and vital processes like neurotransmitter production. However, consuming too much saturated fat may increase the risk of heart disease, as lipids also play key roles in hormone production and cell signalling. Both types of fat are part of a balanced diet, but unsaturated fats over saturated fats are generally recommended for heart health. The USDA Dietary Guidelines (2025) and the American Heart Association suggest limiting saturated fat intake to less than 10% of daily calories.



Saturated fatty acids (SFAs) contain only single carbon-to-carbon bonds, whereas monounsaturated fatty acids (MUFAs) contain at one carbon-to-carbon double bond (Figure 3), and polyunsaturated fatty acid contain two or more double bonds. Most of the fats in animal products are stored as triglycerides, which typically contains a SFA (usually palmitic acid), a MUFA (usually oleic acid), and a polyunsaturated fatty acid (usually linoleic acid) (Figure 4).

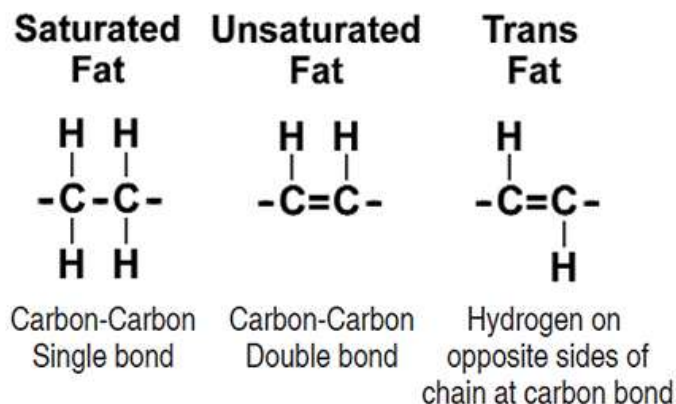


Figure 3 The chemical formation of saturated, unsaturated and trans fatty acids in terms of hydrogen atom saturation and single vs double bonds (Global Seafood Alliance, 2020).

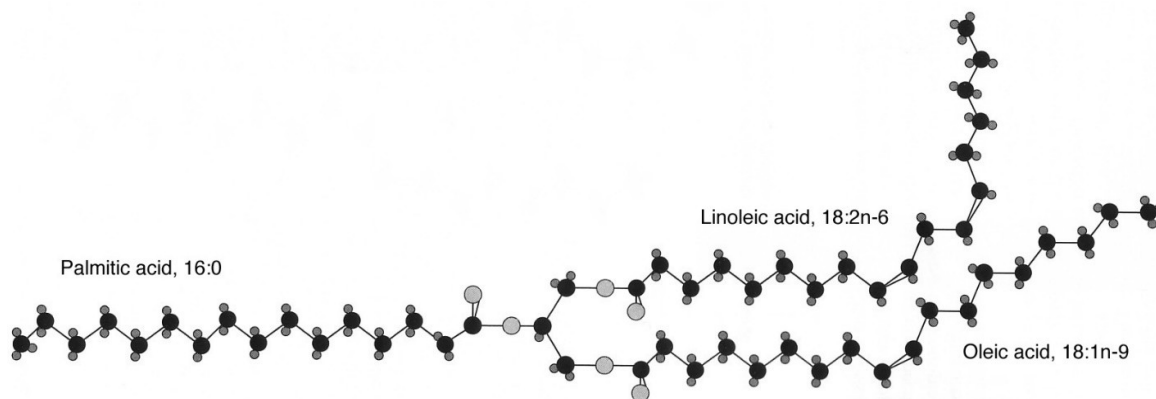


Figure 4 Structure of a typical triglyceride found in beef fat. Wagyu fat can contain as many as three oleic acids in each triglyceride (Smith *et al.*, 1998).

Wagyu Fat and Eating Quality

The unique fat composition of Wagyu beef doesn't just impact health—it also enhances the eating experience. As mentioned before, its high levels of oleic acid content make the fat softer and more fluid, contributing to a smoother mouthfeel and more tender meat. This is why Wagyu beef is known for its rich, juicy flavour and tenderness. Interestingly, the amount of oleic acid in the fat influences how appetizing the beef is, with more oleic acid associated with a higher overall palatability (Perry *et al.*, 1998; Smith *et al.*, 1998).



Lipids from beef from Japanese Black cattle, contain a high level of oleic acid, which results in a low melting temperature of around 24°C. This is the lowest melting point observed in beef fat, showing that both genetics and diet or production system, play a role in the fat's characteristics. Grain-fed cattle typically exhibit higher levels of monounsaturated fatty acids (MUFA) and a decrease in saturated fatty acids (SFA) as they age (Huerta-Leidenz *et al.*, 1996; Mitsuhashi *et al.*, 1988a; Mitsuhashi *et al.*, 1988b). MUFAs, due to their molecular structure, have low melting points and contribute to the softer texture of the fat, which is a key factor in the tenderness and flavour of beef like Wagyu.

Conclusion: Is Wagyu Beef Heart-Healthy?

Thanks to its unique fatty acid profile, particularly its high oleic acid content, Wagyu beef may offer heart-healthy benefits compared to other types of beef. When consumed in moderation, it can be part of a balanced diet that supports cardiovascular health. With its tender texture and rich flavour, Wagyu offers a delicious dining experience and a potential nutritional advantage—making it a special option for health-conscious consumers.

FOR FURTHER READING

See the published scientific article & references:

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GLOSSARY

CHD – Coronary heart disease

CVD – Cardio-vascular disease. Increasing levels of oleic acid in beef reduces the risk factors for CVD.

HDL – High Density Lipoprotein 'Good' cholesterol remembered by 'Heavenly Cholesterol Should Be High.'

IMF – Intra-muscular fat or 'marbling.' Increased marbling equates to not only greater 'healthfulness' but also beef with increased tenderness, juiciness, and taste.

LDL – Low Density Lipoprotein 'Bad' cholesterol remembered by 'Lousy Cholesterol Should Be Low.' Dietary Saturated Fat increases LDL cholesterol

LDL & HDL – Tiny spheres that bounce around in your blood transferring cholesterol to and from the liver. High levels of oleic acid have positive effects on LDL 'bad' cholesterol by lowering it, as well as on HDL 'good' cholesterol. Low levels of HDL 'good' cholesterol (No.1 risk factor) and smoking (No.2 risk factor) are the most important risk factors for CHD (coronary heart disease) risk.

MS – Marble Score: Wagyu beef is often sold according to its Marble Score using Japanese, Australian or other comparative scales

MUFA – Monounsaturated fatty acid. Oleic acid (one double bond) is a monounsaturated fatty acid.

Oleic Acid – The most abundant fatty acid in Wagyu beef is oleic acid (18:1, a monounsaturated fatty acid).

PUFA – Polyunsaturated fatty acid

Wagyu – Breed of cattle originating in Japan with a natural disposition to marbled beef and famed for its unique marbling.

WWC – World Wagyu Council, comprised of over a dozen Wagyu breed associations and societies from countries around the world dedicated to cooperative efforts and initiatives for members to promote and develop the integrity of the Wagyu breed and brand internationally.

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