

DEFINITION

Muffins are small cup cake-like baked products, more elastic and less tender than cup cakes. They have bell-shaped tops, can be sweet or savoury and are leavened with baking powder or soda.

American-style muffins can be divided into two types, those that are bread-like with less sugar and butter and those which have higher levels of these ingredients are called cake-like. Each type has its own technique for mixing the batter.

HISTORY

The name 'muffin' either comes from the French word 'moufflet', meaning a soft bread, or from the German word 'muffe', which is a type of cake.

INGREDIENTS

A basic muffin batter contains flour, sugar, baking powder/soda, eggs, a fat (liquid or solid), and milk (buttermilk, yogurt, sour cream). Fruit, nuts, chocolate, vanilla, spices, bran or oats can all be added for flavour and interest. A streusel topping or glaze may also be added for flavour and texture.

PROCESSING

The *bread-like muffin* batter is made using the "muffin method". One bowl is used to combine all the dry ingredients, while a second bowl contains all the wet ingredients. The fat used is usually in liquid form, commonly melted butter or oil. Once the wet and dry ingredients have been mixed together separately, they are then combined. The mixing is the most important stage in muffin making as it has a large impact on the end product. Due to the ratio of liquid to flour being high there is a tendency to overmix the batter. This leads to overdevelopment of the gluten in the flour which will cause a tough muffin with tunnels and a compact texture. The batter should be still lumpy with a few traces of flour which will disappear on baking. A sign that the batter has been overmixed is when it becomes very stringy as overmixing causes long strands of gluten to form making it hard for the leavener to work.

The *cake-like muffin* batter is prepared using the same method as making a cake batter. The butter, which needs to be at room temperature, and sugar are creamed together. Eggs are beaten in to the mixture and then wet and dry ingredients are added alternately. The higher sugar and fat contents in this type of muffin act as tenderizers thereby producing a richer cake-like muffin with a softer crumb. The increased fat content also minimizes the development of gluten which again helps to produce a muffin with a softer crumb.

Muffins are baked in a muffin pan or tin made of steel, aluminium or cast iron with rounded corners and seamless cups. If a dark coloured pan is used then the oven temperature should be reduced by 25°C, as they absorb more of the energy coming from the oven walls so they become hotter and transmit heat faster than light coloured pans. Paper or foil muffin cup liners are sometimes used to line the muffin pans. The liners help to keep the muffins moist and prevent them from drying out. For muffins with a crust, spray the muffin pan with a non-stick vegetable spray and avoid using a liner.

Only fill each pan 1/2 to 2/3 full with batter. Even during this step, the batter should be handled as little as possible as too much handling will cause a tough muffin. Turn the pan halfway during baking for even browning and avoid overbaking as this makes the muffins dry. Muffins should be baked in the centre of a preheated oven and are baked when the edges start to come away from the sides of the pan, usually 20–25 minutes at a 175–205°C oven.

The ideal muffin is symmetrical with a domed top and a bumpy surface. The volume of the batter should have almost doubled during baking. The muffin should feel light for its size and when cut in half its interior should be moist and tender with no tunnels.

TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE
Muffins have tunnels and are dry	Batter was over mixed (too much gluten development). Over-baked and/or oven too hot. Too much flour and/or too little liquid.
Muffins have an uneven shape	Too much batter in each cup (fill only 1/2 to 2/3 full). Overfilling will cause muffins to have "flying saucer"-like tops. Oven temperature too high.
Tops are brown but muffin is not cooked through	Oven temperature too high. Oven rack not in centre of oven.

Muffin does not rise sufficiently	Oven temperature too low. Oven temperature too low. Batter over mixed or incorrect amount of leavener.
Heavy, compact muffin	Too much leavener added.
Muffins stick to pan	Pan was not prepared properly. Muffins sat in pan too long after removing from oven. Try placing the pan on a wet towel for a few minutes to loosen the muffins. Run a sharp edge around the inside of each muffin.

REFERENCES

Matz SA November 1987. Formulas & procedures for other yeast leavened products, Chapter 10. In: Formulas & processes for bakers.
Pan Tech International. Wheat Foods Council 2010. Grains of truth about muffins