

CHAPTER 1

Espresso

Espresso (/ɛˈsprɛsoʊ/, Italian: [esˈprɛsso]) is coffee brewed by expressing or forcing a small amount of nearly boiling water under pressure through finely ground coffee beans. Espresso is generally thicker than coffee brewed by other methods, has a higher concentration of suspended and dissolved solids, and has crema on top (a foam with a creamy consistency).^[1] As a result of the pressurized brewing process, the flavors and chemicals in a typical cup of espresso are very concentrated. Espresso is also the base for other drinks such as a caffè latte, cappuccino, caffè macchiato, caffè mocha, flat white, or caffè Americano.

Espresso has more caffeine per unit volume than most coffee beverages, but because the usual serving size is much smaller, the total caffeine content is less than a mug of standard brewed coffee, contrary to a common belief.^[2] Although the actual caffeine content of any coffee drink varies by size, bean origin, roast method and other factors, the caffeine content of typical servings of espresso vs. drip brew are 120 to 170 mg^[3] vs. 150 to 200 mg.^{[4][5]}

Brewing

Espresso is made by forcing very hot water under high pressure through finely ground compacted coffee. Tamping down the coffee promotes the water's even penetration through the grounds.^[6] This process produces an almost syrupy beverage by extracting both solid and dissolved components. The crema^{[7][8]} is produced by emulsifying the oils in the ground coffee into a colloid, which does not occur in other brewing methods. There is no universal standard defining the process of extracting espresso,^[9] but there are several published definitions which attempt to place constraints on the amount and type of ground coffee used, the temperature and pressure of the water, and the rate of extraction.^{[10][11]} Generally, one uses an espresso machine to make espresso. The act of producing a shot of espresso is often termed "pulling" a shot, originating from lever espresso machines, which require pulling down a handle attached to a spring-loaded piston, forcing hot water through the coffee at high pressure. Today, however, it is more common for the pressure to be generated by an electric pump.

The technical parameters outlined by the Italian Espresso National Institute for making a "certified Italian espresso" are:^[12]

Espresso roast

Espresso is both a coffee beverage and a brewing method. It is not a specific bean, bean blend, or roast level. Any bean or roasting level can be used to produce authentic espresso. For example, in southern Italy, a darker roast is generally preferred. Farther north, the trend moves toward slightly lighter roasts, while outside Italy a wide range is popular.^[13]

History

Angelo Moriondo patented a steam-driven "instantaneous" coffee beverage making device in 1884 (No. 33/256). The device is "almost certainly the first Italian bar machine that controlled the supply of steam and water separately through the coffee" and Moriondo is "certainly one of the earliest discoverers of the espresso [sic] machine, if not the earliest".^[14] Unlike true espresso machines, it brewed in bulk, not as individual servings. Seventeen years later, in 1901, Luigi

Bezzera, from Milan, came up with a number of improvements to the espresso machine. He patented a number of these, the first of which was applied for on 19 December 1901. It was titled "Innovations in the machinery to prepare and immediately serve coffee beverage" (Patent No. 153/94, 61707, granted on 5 June 1902). In 1905, the patent was bought by Desiderio Pavoni, who founded the La Pavoni company and began to produce the machine industrially (one a day) in a small workshop in Via Parini in Milan.

The popularity of espresso developed in various ways; a detailed discussion of the spread of espresso is given in (Morris 2007), which is a source of various statements below. In Italy, the rise of espresso consumption was associated with urbanization, espresso bars providing a place for socializing. Further, coffee prices were controlled by local authorities, provided the coffee was consumed standing up, encouraging the "stand at a bar" culture.

In the English-speaking world, espresso became popular, particularly in the form of cappuccino, owing to the tradition of drinking coffee with milk and the exotic appeal of the foam; in the United States, this was more often in the form of lattes, with or without flavored syrups added. The latte is claimed to have been invented in the 1950s by Italian American Lino Meiorin of Caffè Mediterraneo in Berkeley, California, as a long cappuccino, and was then popularized in Seattle,^[15] and then nationally and internationally by Seattle-based Starbucks in the late 1980s and 1990s.

In the United Kingdom, espresso grew in popularity among youth in the 1950s, who felt more welcome in the coffee shops than in public houses (pubs). Espresso was initially popular, particularly within the Italian diaspora, growing in popularity with tourism to Italy exposing others to espresso, as developed by Eiscafès established by Italians in Germany. Initially, expatriate Italian espresso bars were downmarket venues, serving the working-class Italian diaspora and thus providing appeal to the alternative subculture; this can still be seen in the United States in Italian American neighborhoods, such as Boston's North End, New York's Little Italy, and San Francisco's North Beach. As specialty coffee developed in the 1980s (following earlier developments in the 1970s and even 1960s), an indigenous artisanal coffee culture developed, with espresso instead positioned as an upmarket drink.

In the 2010s, coffee culture commentators distinguish large-chain mid-market coffee as "Second Wave Coffee", and upmarket artisanal coffee as "Third Wave Coffee". In the Middle East and Asia, espresso is growing in popularity, with the opening of Western coffee-shop chains.^[16]

CHAPTER 2

Café vs. home preparation

Home espresso machines have expanded in popularity with the general rise of interest in espresso. Today, an ample range of home espresso equipment can be found in kitchen and appliance stores, online dealers, and department stores. The first espresso machine for home use was the Gaggia Gilda.^[17] Soon afterwards, analogous machines such as the Faema Faemina, FE-AR La Peppina and VAM Caravel followed suit in similar form factor and operational principles.^[18] These machines still have a small but dedicated percentage of fans. Until the advent of the first small electrical pump-based espresso machines such as the Gaggia Baby and Quickmill 810, home espresso machines were not extensively adopted. In recent years, the increased availability of advantageous counter-top fully automatic home espresso makers and pod-based espresso serving systems has increased the volume of espresso

consumed at home. The popularity of home espresso making parallels the increment of home coffee roasting. Some amateurs pursue both home roasting coffee and making espresso.

Etymology and spelling

Although some Anglo-American dictionaries easily refer to "pressed-out",^[19] "espresso", much like the English word "express", conveys the senses of "just for you" and "quickly", which can be related to the technique of espresso preparation.

The words express, expres and espresso each have different meanings in English, French and Italian. The first meaning is to do with the idea of "expressing" or squeezing the flavour from the coffee using the compression of the steam. The second meaning is to do with speed, as in a train. Lastly there is the notion of doing something "expressly" for a person ... The first Bezzera and Pavoni espresso machines in 1906 took 45 seconds to prepare a cup of coffee, one at a time, expressly for you.^[20]

Modern espresso, using hot water under pressure, as pioneered by Gaggia in the 1940s, was originally defined crema caffè, in English "cream coffee", as can be seen on old Gaggia machines, due to the crema.^[21] This word is no longer used, though crema caffè and variants (caffè crema, café crema) find occasional use in branding.

Variant spelling

There is a controversy over whether the spelling *expresso* is erroneous or whether it is an acceptable variant. It is called a less common variant in some sources.^[22] Italy uses the word *espresso*, substituting s for most x letters in Latin-root words; x is not considered part of the standard Italian alphabet. Italian people usually refer to it simply as *caffè* (coffee), *espresso* being the ordinary coffee to order; in Spain, while *café expreso* is seen as the more "formal" denomination, *café solo* (alone, without milk) is the common way to ask for it when at an espresso bar. Some sources state that *expresso* is an erroneous spelling, including Garner's *Modern American Usage*.^[23]

While the '*expresso*' spelling is accepted as mainstream usage in some American dictionaries,^{[24][25]} some cooking websites call the 'x' variant illegitimate.^{[26][27][28][29]} Oxford Dictionaries online declares "The spelling '*expresso*' is not used in the original Italian and is strictly erroneous, although it is common."^[30] The Oxford English Dictionary and Merriam-Webster call it a variant spelling.^{[23][31]} The Online Etymology Dictionary calls "*expresso*" a variant of "*espresso*."^[32] The Oxford Dictionary of American Usage and Style (2000) specifies the spelling *expresso* as "wrong", and describes *espresso* as the only correct form.^[33] The third edition of Fowler's *Modern English Usage*, published by the Oxford University Press in 1996, noted that the form *espresso* "has entirely driven out the variant *expresso* (which was probably invented under the impression that it meant 'fast, express')."^[34]

Shot variables

The most important variables in a shot of espresso are the "size" and "length".^{[35][36]} This terminology is standardized, but the precise sizes and proportions vary considerably.

Cafés may have a standardized shot (size and length), such as "triple ristretto",^[36] only varying the number of shots in espresso-based drinks such as lattes, but not changing the extraction – changing between a double and a triple requires changing the filter basket size, while changing between ristretto, normale, and lungo may necessitate changing the grind, which is less easily accommodated in a busy café, as fine tweaking of the grind is a central aspect to consistent quality espresso-making.

Size

The size can be a single, double, or triple, using a proportional quantity of ground coffee, roughly 7, 14, and 21 grams; correspondingly sized filter baskets are used. The Italian multiplier word *doppio* is often used for a double, with *solo* and *triplo* being more rarely used for singles and triples. The single shot is the traditional shot size, being the maximum that could without difficulty be pulled on a lever machine.

Single baskets are sharply tapered or stepped down in diameter to offer comparable depth to the double baskets and, therefore, comparable resistance to water pressure. Most double baskets are softly tapered (the "Faema model"), while others, such as the La Marzocco, have straight sides. Triple baskets are usually straight-sided.

Portafilters will often come with two spouts, normally closely spaced, and a double-size basket – each spout can optionally dispense into a different cup, yielding two solo-size (but *doppio*-brewed) shots, or into a single cup (hence the close spacing). True solo shots are infrequent, with a single shot in a café usually being half of a *doppio* shot.

In espresso-based drinks in America, especially larger milk-based drinks, a drink with three or four shots of espresso will be called a "triple" or "quad", respectively.

CHAPTER 3

Length

Ristretto (or *stretto*) (reduced), normale/standard (normal), or lungo (long)^[37] is the length of the shot: these may coincide to a larger or a smaller drink identical level of extraction and with the identical amount of ground coffee or to different length of extraction. the volume (and low density) of crema make volume-based comparisons difficult and proportions are different (specific measurement uses the mass of the drink). Usually lungo is double to triple the normale volume and ristretto is half the volume of normale. For a double shot, (14 grams of dry coffee), a normale uses about 60 ml of water. A common form identified with espresso, a double ristretto, uses about 30 ml, half the amount of water.^[citation needed]

Stopped at different times^[citation needed] – which may result in an underextracted shot (if run too short a time) or an overextracted shot (if run too long a time).^[citation needed], ristretto, normale, and lungo may not commonly be the same shot. Rather, the grind is adjusted (finer for ristretto, coarser for lungo) so the target volume is reached by the time extraction finishes.^[38]

The *caffè crema* is a significantly longer shot, which is brewed in the identical way, with a coarser grind and longer than a lungo, ranging in size from 120–240 ml (4–8 US fl oz).

passing more water through the load of ground coffee will add other flavors to the espresso, which might be bad for some people while the procedure of adding hot water produces a milder version of original flavor, while

Cold

Mostly served in southern Europe, cold espresso (*espresso freddo*) is an alternative kind of espresso. Along with cappuccino freddo in the early 1990s, Conceived in Greece, freddo espresso is in increasing demand in Greece and its neighbouring countries during summer.^[39] the coffee is stirred in a big iron can along with sugar (if necessary) and 2–3 ice

pieces until the can is cold after preparing 2 shots of espresso (usually ristretto). Then the blend is put in a glass full of ice cubes.

Nutrition

Espresso has significant amounts of the dietary mineral magnesium, 212 mg of caffeine per 100 grams of liquid brewed coffee (table) and the B vitamins niacin and riboflavin. Probably owing to its higher amount of suspended solids than typical coffee which is absent of essential nutrients,

Espresso-based drinks

Furthermore to being served alone, espresso is frequently blended, notably with milk – either steamed (without significant foam), dry foamed or wet foamed ("microfoam"), and with hot water. Notable milk-based espresso drinks, in order of size, contains: cappuccino, macchiato, latte and flat white; other milk and espresso combinations contains cortado and galão, which are made primarily with steamed milk with little or no foam, latte macchiato. Espresso and water combinations contains Americano and long black. Other combinations contains coffee with espresso, sometimes called "shot in the dark"^[40] or "red eye".

On the basis of size, these may be organized as follows:

- Latte: 240–600 ml, two or more shots (60 ml), with 1:3–1:9 milk
- Flat white: 150 ml, one or two shots (30 or 60 ml), with 1:4 or 2:3 milk, and a small amount (usually 1/4 inch) microfoam.
- Cortado: 60 ml, one shot with 1:1 milk, little foam
- Modern macchiato: 60 ml or 120 ml, one or two shots (30 or 60 ml), with 1:1 milk
- Piccolo Latte: 90 ml, one shot with 1:2 milk, little foam
- Galão: 120 ml, one shot with 1:3 milk, little foam
- Traditional macchiato: 35–40 ml, one shot (30 ml) with a little amount of milk (mostly steamed, with slight foam so there is a visible mark)
- Cappuccino: a very famous frothed milk and espresso drink with no generally-accepted volume standards, but usually served at 120 to 160 ml., containing a single or (more commonly) double shot of espresso.^[41]

Between drinks and between baristas procedures of preparation may differ. For cappuccino, macchiatos, smaller lattes and Americanos and flat white, the espresso is brewed into the cup, then the milk or water is poured in. For bigger drinks, where a tall glass will not fit under the brew head, the espresso is brewed into a small cup, then poured into the bigger cup; for this aim a demitasse or specialized espresso brew pitcher can be used. This "pouring into an existing glass" is a defining characteristic of the latte macchiato and classic renditions of the red eye. Alternatively, a glass with "existing" water may have espresso brewed into it – to conserve the crema – in the long black. Brewing into milk is not generally done.