

# How Much Matza Do You Need to Eat?

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The mitzvah of eating matza at the Seder is greatly cherished. Much effort and significant cost is expended to acquire proper matza shemura.<sup>97</sup> We limit our food intake on erev Pesach to assure that the matza is eaten with an appetite, in order to beautify the mitzvah.<sup>98</sup> We place the matzos carefully and lovingly on the seder table, and recite over them the immortal story of Yetzias Mitzrayim.<sup>99</sup>

Finally, the long-anticipated moment arrives. Every man, woman and child eats the matza with physical relish and spiritual excitement. Yet, even after having finished eating, the gnawing question remains: did I eat enough matza to fulfill the mitzvah? The answer seems simple. One must simply judge whether one has eaten an amount equivalent to an average olive: a “k’zayis”.

Exactly how large is a k’zayis? Today’s olives are quite small. Estimates range from 3 cubic centimeters (slightly more than one tenth of one fluid ounce) to 7.5 cubic centimeters.<sup>100</sup> This is equivalent to less than one fifteenth of the average hand-baked matza, which is the kind that is typically used at the Seder.<sup>101</sup> If one is using machine-baked matza, which contains about half the volume and weight of a hand-baked one, the quantity (shiur) is still less than two fifteenths of the matza.<sup>102</sup> Why, then, do many people insist on eating a much larger amount?

The answer lies in a ruling cited in the Shulchan Aruch,<sup>103</sup> which states that a k’zayis is about half the size of an egg. This startling position emerges from an analysis of several Talmudic passages.<sup>104</sup> The Mishna Brurah<sup>105</sup> recommends complying with this opinion since the requirement to eat matza on the first night of Pesach is a Torah commandment. He concludes, however, that a sick person may rely on the words of the Rambam,<sup>106</sup> from which it is evident

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<sup>97</sup> Shulchan Aruch Orach Chaim 453-461

<sup>98</sup> Pesachim 99b and Rashi there, Shulchan Aruch Orach Chaim 471

<sup>99</sup> Pesachim 36a, Shulchan Aruch Orach Chaim 473

<sup>100</sup> Rav C.P. Beinish, *Midos V’Shiurei Torah [MVT]* (2000 ed.) p. 532; *Techumin* 10 p. 432

<sup>101</sup> To ensure compliance with the requirement that the matzah be baked with the express intent that it be used for the mitzvah (“lishmah”).

<sup>102</sup> Based on the measurements in *MVT* (p. 277-8) cited in fn 118

<sup>103</sup> Orach Chaim 486:1

<sup>104</sup> See *Magen Avraham* (OC 486), *Ri* in *Tosafos Yoma* 80a-b

<sup>105</sup> 486:1

<sup>106</sup> *Eruvin* 1:9

that a k'zayis is less than one third of an egg. Other authorities reduce the shiur to about three tenths of an egg.<sup>107</sup>

Now we must determine how large an egg is. The size of today's average egg (with the shell) is about 50 cubic centimeters.<sup>108</sup> Rav A. C. Naeh measured the size as 57.6 cubic centimeters.<sup>109</sup> This would then yield a k'zayis measuring 25-29 cubic centimeters, nearly one fluid ounce, which is much larger than today's olives.

The Tzlach (Pesachim 116) presents a remarkable view that would further increase the size of a k'zayis. He cites the view that today's eggs are half the size of those at the time of the Gemara. This is based upon seemingly conflicting statements in the Gemara about measuring the size of a mikva by units of thumbs and units of eggs.<sup>110</sup>

The Mishna Brurah adopts the Tzlach's view when it comes to Torah mitzvos, such as eating matza. If so, one must eat the size of half a contemporary egg doubled, i.e., a whole egg—at least 50 cubic centimeters. This is the equivalent of almost half a hand matza and almost an entire machine-made matza .

Furthermore, the Shulchan Aruch<sup>111</sup> requires one to eat a k'zayis from each of the top two matzos together. This would result in a shiur of 100 cubic centimeters! However, since this requirement is only rabbinic, we need not double the shiur out of a concern that the eggs today have shrunk from those at the time of the Gemara.

The Mishna Brurah<sup>112</sup> rules that one must swallow a k'zayis at once. This, too, is a rabbinic requirement and can be discharged without doubling the k'zayis. However, the entire larger k'zayis must be eaten within the amount of time it takes to eat three eggs. This is about 4 minutes, although estimates vary from 2 until 9 minutes.<sup>113</sup>

The language the Shulchan Aruch (486:1), “some say that a k'zayis is about half an egg” indicates that another view exists—a view which may in fact be more authoritative. This implied other view may be the shiur based on the Rambam—one third of an egg.<sup>114</sup> The Shulchan Aruch, as usual, follows the opinion of the Rambam, and quotes the shiur of half an egg as “some say”—i.e., a stringency for Torah law only.

This may generate a “s'feik s'feika” (double doubt) necessitating the doubling only of the smaller shiur. This would require eating two thirds of the size of an egg, rather than the size of an entire egg as the Mishna Brurah rules.

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<sup>107</sup> R. Tam in Tosafos Yoma 80a-b, GR”A in his commentary on Mishlei 22:9

<sup>108</sup> MVT p. 246

<sup>109</sup> *ibid.*

<sup>110</sup> It should be noted, however, that archaeological evidence shows that contemporary eggs and olives are the same size as they were in Talmudic times. Also, the measurements for the *revi*'s given by the Rambam and Geonim correspond to the smaller eggs. See MVT and *Midos Umishkalos shel Torah* (R. Y.G.Weiss).

<sup>111</sup> 475:1

<sup>112</sup> 475:9

<sup>113</sup> Shmiras Shabbos Kehilchasa 48:10 and fn 62

<sup>114</sup> Eruvin 1:9, OC 368:3

Moreover, it is possible that the more accepted view alluded to in the Shulchan Aruch is the simple one, which is that we only need to eat the size of a contemporary olive, independent of the size of an egg. This would require a reevaluation of the Gemara that seems to establish a relationship between the size of eggs and olives. This would also justify what used to be the common custom of eating a much smaller shiur of k'zayis.<sup>115</sup>

Nonetheless, the accepted stringency of the Shulchan Aruch to eat half the size of an egg must be practiced whenever possible. As mentioned, our eggs are about 50 cubic centimeters in volume. The Chazon Ish rules<sup>116</sup> that a k'zayis is half an egg without its shell. According to the precise measurement of Rav C.P. Beinish,<sup>117</sup> a liquid raw egg is about 45 cubic centimeters in volume. Therefore, a k'zayis would equal 22.5 cubic centimeters.

A cubic centimeter of matza, both hand- and machine-made, weighs about half as much as a cubic centimeter of water. A pound of matza contains about 15 machine-made matzos and about 7.5 hand-baked matzos. The volume of 22.5 cubic centimeters, which weighs about 11.25 grams, is less than two fifths of a machine-made matza, and less than one fifth of a hand-baked matza.<sup>118</sup> In cases of illness, one may consider eating only a smaller shiur, either one third of an egg in its

<sup>115</sup> See, e.g. the opinion of R. Chaim Volozhiner in the new (Weinreb) edition of *Maaseh Rav* (p. 218, 337-8, citing Kehillos Yaakov Pesachim 43). Particularly intriguing is the view of the Chazon Ish. A staunch advocate of the Tzlach's doubling of the eggs, he apparently ruled that half a machine matza is more than a k'zayis, coming to this conclusion by grinding up the matza and measuring the volume of the crumbs.

HaRav C.P. Beinish (*Middos V'Shiurei HaTorah* p. 278) notes that this method of measuring the k'zayis can include more air space between the crumbs and produce a lenient result. He suggests that the Chazon Ish relied on the fact that the 50 cubic centimeter shiur is based on three stringencies in the measuring of a k'zayis that the Mishna Brurah combined: 1) half an egg; 2) with its shell; 3) doubling the k'zayis. The Chazon Ish held that, strictly speaking, the more correct view is that a k'zayis is: 1) one third of an egg; 2) without the shell; 3) without doubling it. Doubling only applies to eggs and its strict derivations, such as the shiur *revi'is* (1½ eggs) for kiddush, but not the k'zayis, which is never formally linked to the size of an egg. Or, perhaps, only to the *revi'is*, which may be measured intrinsically by thumbs and only indexed to the size of eggs.

Removing the shell reduces the size of an egg by about 10 percent (MVT p. 239-40). However, this leniency cannot be combined with the opinion of the Rambam whose shiur is less than a third of an egg with its shell. Therefore, one third of an egg, about 17 cubic centimeters, is required.

<sup>116</sup> OC 39:17 s.v. b'Mishna Brurah

<sup>117</sup> *Midos V'Shiurei HaTorah* p. 246

<sup>118</sup> MVT p. 277 measured the volume of hand and machine-made matzos precisely; they both weigh about half the equivalent volume of water. A machine-made matza weighed 32.2 grams (about 1 1/7 ounces, as an ounce is 28.3 grams) and measured 62 cubic centimeters. Our matzos may be slightly smaller (15 in a 1lb or 453 gram box yields 30 grams per matza). Nonetheless, 2/5 is 12 grams, more than the 22.5 cubic centimeters (11.25 grams) of half an egg without the shell. For the average hand-baked matza, which is twice the weight (about 7.5 matzos per pound) and volume (since both weigh half the equivalent volume of water), 1/5 of a matza is more than 22.5 cubic centimeters, a k'zayis. More usefully, the approximate measurement of the required matzah can be expressed in the following table:

Matzos per Pound	Kezayis (22.5 cc)
6	2/13 matzah
7	1/6 matzah
8	1/5 matzah
9	2/9 matzah
10	1/4 matzah

shell (about 17 cubic centimeters) or the size of today's olives (no more than 7.5 cubic centimeters).

Preferably, one should double the shiur to less than four fifths of a machine-made matza or less than two fifths of a hand-baked matza. This accounts for the Mishna Brurah's stringency to double the size of the eggs for a mitzvah mid'oraysa, while simultaneously complying with the rabbinic requirement quoted in the Shulchan Aruch to eat two k'zaysim.

The Rambam<sup>119</sup> records the mitzvah to eat matza at the Seder and concludes "when one has eaten a k'zayis of matza one has discharged one's obligation." Rav Soloveitchik z"l, echoing the Netziv<sup>120</sup>, interprets that although the k'zayis is the minimum to discharge the obligation, all the matza that one eats on Seder night counts as a fulfillment of a Torah mitzvah.<sup>121</sup> Thus, even if one eats more than is required, he continues to fulfill the cherished and sublime mitzvah m'deoraysa of eating matza. Therefore, a healthy person should eat much more matzah than the minimum shiur, and consequently should not need to be so exacting about the shiurim.

In Nissan we were redeemed and in Nissan we will be redeemed.<sup>122</sup> When the Sanhedrin reconvenes, the precise shiur of k'zayis will become known. More importantly, when the Beis Hamikdash will be rebuilt, we will fulfill the mitzvah of bringing and eating a k'zayis of the Korban Pesach as well.

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<sup>119</sup> Hilchos Chametz UMatza 6:1

<sup>120</sup> Ha'emek Sheila 53:4

<sup>121</sup> See Kehillas Yaacov Brachos 5

<sup>122</sup> Rosh Hashana 11a