



BEER & CALORIES

A SCIENTIFIC REVIEW

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EXECUTIVE SUMMARY

MODERATE CONSUMPTION OF BEER CAN BE PART OF A HEALTHY DIET AND LIFESTYLE.

The belief that beer is excessively calorific and causes weight gain and a “beer belly” has no scientific basis. There is evidence that beer has nutritional and wellbeing benefits if drunk in moderation that are similar to those found with wine and that moderate consumption of beer can be part of a healthy diet and lifestyle.

Excessive consumption of any type of alcohol resulting in extra calorie intake can lead to energy imbalance and thus weight gain. However moderate alcohol consumption does not necessarily lead to weight gain if energy balance is maintained.

The evidence suggests that waist circumference increases with increased weight gain as a consequence of excess calories being consumed. Because of this, high rather than moderate or low consumption of any type of alcohol is associated with increased risk of abdominal obesity. However moderate consumption of alcohol of any type does not necessarily appear to lead to weight gain or abdominal body fatness. Moderate beer consumption does not lead to weight gain or abdominal fatness (“beer belly”) and the perception that drinking beer results in a beer belly is not supported by the scientific evidence to date. Indeed in many instances beer has a relatively lower calorie value compared to other alcoholic drinks as well as a variety of everyday food items such as a banana, a bag of crisps and a cappuccino.

The evidence for the effect of excessive alcohol consumption on increased mortality and morbidity is not disputed but the growing scientific support that moderate consumption of beer can be associated with health benefits cannot be ignored. The nutritional composition of beer has been associated positively with many health benefits such as cardiovascular disease and diabetes, and beer contains a significant quantity of nutrients; such as B vitamins, silicon and fibre. Taken in excess, alcohol has severe effects on the body and indeed society. However the evidence is clear that when consumed in moderation by people who do not have to abstain from drinking alcohol for health reasons, beer may form part of an adult’s balanced and healthy lifestyle.

INTRODUCTION

Beer is commonly perceived as being high in “empty kcals” and responsible for unwanted weight gain and in particular a “beer belly”. While the nutritional and health benefits of wine are regularly promoted, the scientific research on beer is less known and rarely reported in the media resulting in increased misconceptions amongst consumers about the once staple drink for the British family.

The aim of this report is to review the scientific evidence and see if beer compared to other alcoholic beverages is associated with greater weight gain and is responsible for abdominal obesity, more commonly referred to as a “beer belly”.

BEER IS AS OLD AS CIVILIZATION!

Historians suggest we brewed beer before we learned to make bread and that it was this fondness for beer that was a factor in our evolution from hunter gatherers to an agrarian society settling to grow crops! When crops needed to be stored over the winter, they were often preserved as beer. The main raw material in beer brewing is grain which grows better than grapes in cooler climates, hence northern countries like Britain produced beer in preference to wine.

Beer became a staple part of the diet similar to the role wine plays today in the French diet. Not just a source of nutrition, beer served many religious and medicinal purposes. It was a staple drink for the whole family often because of it being safer to drink than water and it was only with greater sanitation and the development of cleaner water in the seventeenth century that beer in many countries like Britain shifted away from being a staple beverage at meal times. Interestingly consumption of beer still remains as a companion to meals and a key feature of the diet in countries such as the Czech Republic and Germany.

Despite its illustrious past, beer drinking in Britain has become regarded by many as a vice and not a component of a healthy diet or lifestyle. This is contrary to the evidence. Beer is more than a hedonistic pleasure providing “empty calories” and a “beer belly”. Enjoyed in moderation by people who do not have to abstain from drinking alcohol for health reasons beer like wine can contribute to a healthy balanced diet. Moderate consumption may also protect against many conditions such as heart disease, osteoporosis and diabetes *Tucker et al 2009, (Costanzo et al 2011, Jooten et al 2012)*

BEER: THE NATION'S FAVOURITE DRINK

While the ill effects of excess alcohol consumption are well documented, there is growing acceptance that there are health benefits from consuming it in moderate amounts. Although beer's nutritional credentials have historically been extolled it is only in more recent years that the scientific community are realising that moderate consumption of beer may have a similar beneficial impact on health to wine in offering protection against conditions such as heart disease (*Costanzo et al 2011*) and diabetes (*Jooten et al 2012*). In most countries high intakes of saturated fat is positively related to high mortality from cardiovascular disease CVD. However the situation in France is paradoxical in that there is a high intake of saturated fat but low mortality from CVD. Rather than a consequence of alcohol consumption this paradox has become attributable to the high consumption of red wine (*Renaud et al 1992*).

Furthermore, while the health benefits of wine in moderation generally are accepted (*Ferrieres 2004*), there is a perception amongst consumers that beer has only detrimental effects on diet and health, in particular on weight control. This is contrary to evidence that moderate beer consumption is associated with beneficial effects on health (*Costanzo et al 2011, Jooten et al 2012*). Unfortunately, this is rarely reported by the media.

In reality, studies have shown that it is the moderate consumption of alcohol that is associated with lower rates of illnesses such as heart disease (*o'Keefe et al 2007*). Additionally, further studies suggest that beer may have unique health and nutritional benefits, not associated with the consumption of other alcoholic beverages (*Tucker et al 2009, Costanzo et al 2011, Jooten et al 2012*).

From a nutritional point of view, beer and wine contain essential micronutrients not typically found in spirits which is usually viewed as a more concentrated and purified source of alcohol. Although like beer, spirits are made from grain, the nutritional contribution conferred by the grain is absent as a consequence of its processing. Because of this spirits are often regarded as "empty calories" unlike beer and wine which can be significant sources of vitamins and minerals (*Fuller et al 1971*).

For example, wines and beers are a source of antioxidants. However, the types of antioxidants found differ not only in concentration but also chemically. It has been suggested that beer may contain about twice as many antioxidants as white wine but half the amount found in red wine. Also the antioxidants found in beer are smaller molecules than those found in red wine and potentially more bioavailable (*Suter 2001*). Antioxidants found in beer and wine may be protective against heart disease and some cancers (*Venkat Rao 2000*).

BEER AND WEIGHT GAIN - FACT OR FALLACY

Prevalence of obesity in the UK has reached alarming rates in the past few years. Currently 63% of adults are overweight and 21% are obese (*Health Survey of England 2010*). There is concern that alcohol is contributing to this epidemic.

Beer in comparison to alcoholic beverages such as wine and spirits is commonly believed to be more likely associated with weight gain and in particular to fat being preferentially deposited in the abdominal region. This is often called central or abdominal adiposity or obesity and it is this increase in waist circumference that is sometimes referred to as a “beer belly”. This type of fat accumulation pattern is more common in men than women and is a major risk factor for heart disease (*Yusuf et al 2004*).

Is this notion that beer drinkers are, on average, more ‘obese’ than either non-drinkers or drinkers of wine or spirits and that beer consumption leads to an increase in waist circumference or a “beer belly” based on scientific evidence?

Daily energy intakes that exceed daily energy expenditure is the driving force for weight gain. Therefore excess energy consumed without compensatory energy expenditure is a formula for weight gain and therefore a risk factor for obesity. Because alcohol contains calories, like any other calorie source if consumed in excessive amounts can lead to energy imbalance increasing body weight and the risk of obesity.

The evidence of the effect of moderate consumption of alcohol on weight gain can be inconsistent.

A study looking at alcohol consumption in women over an 8 year period found no evidence that light to moderate drinking (up to 30g alcohol/day) was associated with weight gain but heavier drinking did promote weight gain in these women. The study concluded that “although there is no need to completely abstain from alcohol to reduce or maintain body weight, heavier drinking may promote weight gain” (*Wannamethee et al 2004*).

According to a Spanish study, it seems that the extra calories provided by drinking more than 3 drinks per day may be enough to exceed energy intake recommendations causing imbalances in the energy balance and resulting in weight gain (*Schroder et al 2007*).

There are suggestions that moderate amounts of alcohol may help the body regulate appetite, thereby not leading to weight gain. In a study looking at the effects of pre-dinner drinks, scientists found that their consumption led to a reduction in food eaten at the meal suggesting that alcohol may depress food consumption in proportion to its energy content. In addition there are suggestions that alcohol may stimulate basal metabolic rate (McDonaldson 1993).

Interestingly, scientists have found that moderate drinkers who drink regularly but only in small amounts had lower body weights than their non-drinking peers and those who drank a lot at once (binge drinkers) (Istvan et al 1995).

In summary, excessive alcohol (be it wine, beer or spirits) resulting in extra calorie intake can lead to energy imbalance and thus weight gain. However, moderate alcohol consumption does not necessarily lead to weight gain if energy balance is maintained. Energy balance can be maintained by either expending excess calories ingested through physical activity or by consuming fewer calories in the overall diet.

ENERGY BALANCE

Energy balance is the balance of calories consumed through eating and drinking compared to calories burned through physical activity. Consuming more calories than expended leads to weight gain, and expending fewer calories than expended leads to weight loss.

BEER AND ABDOMINAL OBESITY – FACT OR FALLACY

Studies have looked at alcohol type and alcohol per se and its effects on body fat distribution. Results have been inconclusive in showing a direct relationship with fat deposition in the abdominal region. A US study found no association between waist circumference changes and moderate alcohol consumption over a nine year period in over 16,000 men (*Koh-Bangerjee et al 2003*).

Studies which have found an association, suggest that this association is dependent on the amount rather than the type of alcohol consumed. For example, in a Spanish study (*Schroder et al 2007*) no significant association of abdominal fatness with alcohol consumption under 3 drinks (30g of alcohol) per day was seen. However, consuming more than this was associated with an increased risk of abdominal fatness. Similarly a study in Copenhagen reported that consuming 4 or more drinks a day (48g alcohol) was associated with increased abdominal obesity (*Vadstrup et al 2003*).

Studies looking specifically at beer consumption and abdominal obesity, have also found inconsistent results. A study of nearly 2000 men and women who regularly drink beer in the Czech Republic led by the University of London concluded that it is unlikely that moderate beer intake is associated with a largely increased general or abdominal weight gain (*Bobak et al 2003*).

A study on men living in 24 towns in Britain looked at their alcohol intake, their pattern of drinking and their weight, body and waist hip ratio (a measure of abdominal obesity or “beer belly”). Higher consumption of any types of alcohol be it spirits, wine or beer was associated with general weight gain and also central adiposity. This again supports the view that it is alcohol per se rather than the type of drink that can increase abdominal fat deposition and that a “beer belly” is not unique to beer drinkers and not uncommon in high consumers of spirits and wine. Interestingly, drinking alcohol with meals seemed to be less associated with abdominal adiposity which might explain why some studies have not shown as strong an association between wine drinkers who frequently drink as part of a meal compared to other alcohol drinkers who do not drink with a meal. A study looking at the effects of quantity and type of alcohol and whether it was consumed with or without a meal, found no evidence that wine protects against abdominal fat deposition. Indeed it suggested that drinking beer with a meal might reduce the risk of abdominal fat being laid (*Wannamethee et al 2005*).

A publication entitled “Beer consumption and the ‘beer belly’: Scientific basis or common belief?” investigated whether abdominal obesity (beer belly) is a consequence of beer consumption. Body weight and waist and hip circumferences measurements were taken from more than 20,000 men and women living in Europe and were analysed by the amount of beer they drank. While a correlation between beer consumption

with an increase in waist circumference was seen in men, this increase was related to overall weight gain and not beer consumption per se. Men who didn't drink beer had a similar risk of having high waist circumferences which the scientists concluded were due to lifestyle factors rather than beer consumption. Not surprisingly heavy beer consumers were more likely to have greater waist circumferences than moderate beer drinkers, the reason being the greater calories consumed by the high beer drinkers. Waist circumference was not associated with beer consumption in women. The authors concluded that abdominal fat is a consequence of gaining weight and not a direct consequence of drinking beer and that "the common belief of beer consumption and "beer belly" development is not supported..... in terms of "beer belly" belief an explanation could be all the observed "beer bellies" in the population result from the natural variation in fat patterning and not from the fact of drinking beer" (Schulz 2009).

A very recent systematic review by scientists at the University of Copenhagen (Bendsen et al 2012) concluded that the available data provide inadequate scientific evidence to assess whether beer intake at moderate levels (<500ml/day) is associated with general or abdominal obesity. Higher intakes however, may be positively associated with abdominal obesity in men but not women. Results are inconsistent across the studies and confounding factors are not always adequately addressed. People preferring beer appear to differ from non-drinkers or wine consumers with regards to multiple dietary and lifestyle factors that are related to obesity. It could be that differences in dietary, smoking and physical activity habits which are not accounted for in the analysis are responsible for inconsistency in results across studies. Future studies are needed to investigate whether it is beer or the dietary and lifestyle habits of beer drinkers compared to drinkers of other alcoholic and non alcoholic beverages that relate to abdominal obesity to elucidate if abdominal obesity equates to a "beer belly" or not.

In summary, the evidence to date suggests that waist circumference increases with increased weight gain as a consequence of excess calories being consumed. Because of this, high rather than moderate or low consumption of any type of alcohol is associated with increased risk of abdominal obesity. However, moderate consumption of alcohol of any type does not necessarily lead to weight gain or abdominal body fatness. Moderate beer consumption does not lead to weight gain or abdominal fatness and the perception that drinking beer results in a "beer belly" is not supported by science. Excess calories in the form of alcohol or any food or beverage causing an energy imbalance has the potential to result in weight gain. Not surprisingly moderation is the key to weight control.

ALCOHOL CHOICE FOR THE WEIGHT CONSCIOUS

Weight management is a major preoccupation for women and men. According to one survey people in Britain spend on average 14 years dieting to lose weight and have tried 61 diets by the age of 45.

Most drinkers add alcohol to their normal diet rather than substitute it, thus the concern that calorie intake is increased and unless energy balanced is maintained weight gain can result. Alcohol choice based on calories is hardly a surprising preoccupation for many. According to a recent UK survey when asked about the calorie content of beer and wine, 55% of adults didn't know how many calories there were in either drink. 74% of women overestimated calorie content of beer, compared to 60% of men.

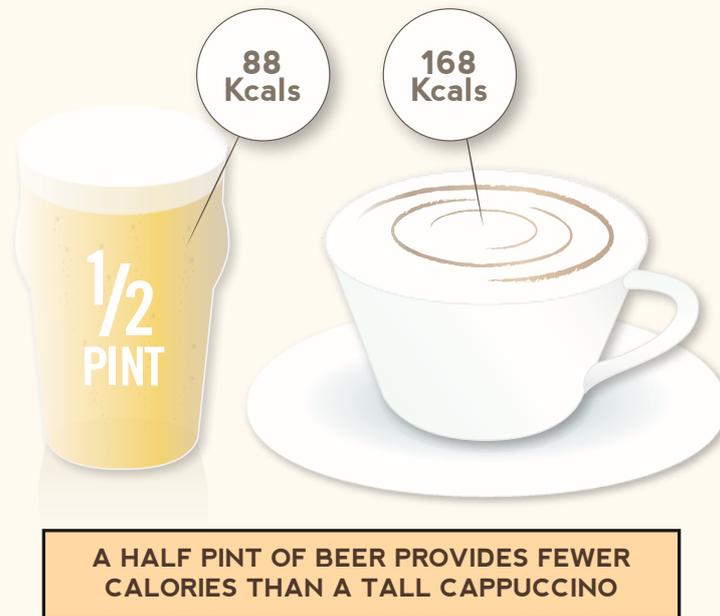
(ComRes survey Jan / Feb 2012).

Alcohol provides 7 calories/g compared to 9 calories/g provided by fat and 4 calories/g by protein and carbohydrate and so is a significant source of calories. Table I compares the calorie and alcohol content of commonly consumed beverages in a pub. Beer typically has the lowest alcohol content with an average ABV of 4%. This compares to 12.5% ABV for wines and 40% ABV for spirits. Per serving, beer has fewer calories than wine; for example a 175ml glass of wine (frequently served in a pub) has more calories than a bottle of beer (330ml). Spirits are lower in calories compared with beers, ales and wine, but of course mixers can increase the calorie levels significantly. Compared to non alcoholic beverages, a 330ml bottle of lager has fewer calories than coke and mixed fruit juices.

There are a number of myths in the media surrounding beer, such as “the beer belly”, but the facts show that beer has a relatively low calorific value compared to other alcoholic and non alcoholic drinks served in pubs. Calories come mostly from the alcohol itself, and since beer compared to wine has the lowest average alcohol content it is also lowest in calories.

BEER HAS LESS CALORIES THAN WINE:

A half pint (284mls) of bitter (ABV 3.8%)	= 90 calories
A 330ml bottle of lager (ABV 4%)	= 112 calories
A 175ml glass of red wine (ABV 13%)	= 139 calories
A 175ml glass of white wine (ABV 11.8%)	= 130 calories



Most drinkers add alcohol to their normal diet rather than substitute it, thus the concern that calorie intake is increased and unless energy balance is maintained by reducing calorie intake from other foods or by exercise, weight gain can result. But is this really an issue for moderate drinkers? Table 2 shows the calorie content of different foods and beverages compared to beers. A half pint of beer provides fewer calories than a banana, a cappuccino or bag of crisps showing that it is not particularly high in calories. Table 3 shows the calories typically expended after 30 minutes of different types of exercise compared to the calorie values of beers; the calorie content of a half pint of beer is equivalent to the calories expended by dancing for 30 minutes or jogging for less than 15 minutes. Moderate beer consumption is unlikely to require excessive physical activity to burn the extra calories consumed!

BEER JUST “EMPTY CALORIES” – FACT OR FALLACY

Consumer decisions on alcohol should be based on alcohol content first before calories. While spirits such as gin or vodka may be lower in calories than beer (but possibly not, depending on whether the mixer is a low calorie option) they do not have the same nutritional profile. In a sense they are “empty calories”. In addition to this, in terms of alcohol absorption, the body “holds onto” higher strength spirits for a longer period of time. Referred as the “Mellanby effect”, alcohol in more dilute drinks is generally absorbed at a slower rate and therefore achieves a lower peak blood alcohol concentration than for more concentrated alcoholic drinks (*Smart 1996*).

All beers are made with the same ingredients; hops, water, yeast and malted cereal such as barley or wheat. Each of these contributes to the overall nutritional profile. Beers contain the same nutrients as grain based foods. They contain no fats or cholesterol, are low in carbohydrates and a source of soluble fibre. One of the most effective forms of soluble fibre for lowering blood cholesterol levels is betaglucan, which is the predominant form of fibre in beer. Two glasses of beer provide up to 10% of recommended daily fibre requirements but beers with high malt content may provide up to 30% (*Gromes et al 2000, Bamforth 2002*). Fibre deficiency which is common in the UK, with 8 out of 10 people not eating enough, is important for digestive health (*Beverley et al 2010, Buttriss & Stokes 2008*).

Beer is rich in micronutrients which are not just provided by the grain but also the yeast used in its production. Table 4 shows the contribution beer makes to vitamin and mineral intakes of men and women living in the UK (*National Diet and Nutrition Survey 2003*).

In particular beer is a significant source of some B vitamins (folate, niacin, riboflavin and vitamin B6) and minerals such as phosphorus, iodine, magnesium and potassium. Intakes of micronutrients such as riboflavin and folate are marginal in some population groups with some people being at risk of vitamin and mineral deficiencies in this country. Moderate consumption of beer as a nutrient dense beverage could improve intake of these potentially problem nutrients and reduce the risk of signs of deficiency.

Beer is also a rich source of silicon, a nutrient currently receiving much interest amongst the scientific community given its protective role in osteoporosis (*Pedreira-Zamorano et al 2007*). It contains antioxidants too. A recent study found that blood levels of antioxidants increased after beer is consumed (*Ghiselli et al 2000*). Researchers working on animals have suggested a direct effect of antioxidants in beer reducing the risk of cardiovascular disease (*Vinson et al 2003*).

WHAT'S A UNIT?

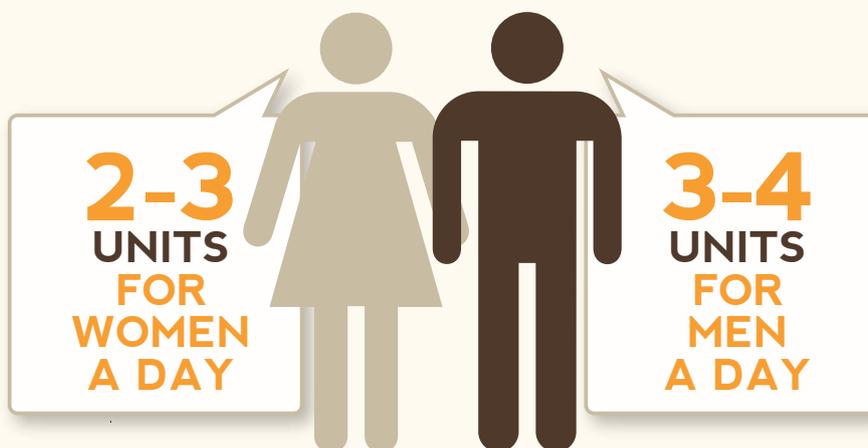
A unit of alcohol is defined as 10 ml or 8g of pure alcohol. The number of units in a drink is based on the size of the drink as well as its alcohol strength. The alcohol strength expressed as a percentage of the whole drink is called ABV, "alcohol by volume" and is a measure of the amount of pure alcohol as a percentage of the total volume of liquid in a drink.

Because the size and strength of alcoholic beverages will determine the number of units it contains, it can be difficult to estimate consumption. Table 5 shows how the alcohol content of the same drink can vary depending on ABV and serving size. A half pint of strong lager (ABV 5.5%) provides 1.5 units and a weaker beer (ABV 3.6%) just over 1 unit. A serving of wine (ABV 13.5%) can range between 1.7-3.5 units depending on the size of the glass. Although spirits used to be commonly served in 25ml measures, equivalent to 1 unit of alcohol, many pubs and bars now serve them in 35ml or 50ml measures (equivalent to 1.4 and 2 units).

DRINKING IN MODERATION- ALCOHOL RECOMMENDATIONS.

In the UK, the Government recommendation for safe intakes of alcohol is no more than 2-3 units a day for women and 3-4 units for men. However, consumer confusion exists on how to translate alcoholic units into typical serving sizes for different drinks. For example, many wines now have an alcohol content of 13-14% (by volume). Glass sizes can be as large as 250ml, with 175ml servings now standard in many restaurants so that a large glass of wine can contain as much as 3.5 units of alcohol!

Government recommendation for safe intakes of alcohol



HEALTH BENEFITS OF MODERATE BEER CONSUMPTION

Moderate consumption of beer by people who do not have to abstain from drinking alcohol for health reasons can be part of a healthy diet and lifestyle and may protect against many conditions.

STRONGER BONES

Beer contains high levels of silicon, which is linked to bone health. A study by Tufts University in 2009 found that moderate consumption of beer can protect bone mineral density (*Tucker et al 2009*).

A PINT OF BEER A DAY MAY BOOST YOUR HEART HEALTH

The consumption of light to moderate amounts of alcohol has been associated with a reduced risk of heart disease in both men and women. In a reanalysis of 16 studies involving more than 200,000 people, scientists calculated that a 31% reduction in risk of heart disease is associated with drinking a daily pint of beer. While wine has been thought to have heart benefits, this study found that beer has a particularly anti-heart disease benefit, in that moderate consumption can increase blood levels of HDL, the good cholesterol (*Costanzo et al 2011*).

TOP TIPS TO MODERATE ALCOHOL CONSUMPTION AND MANAGE CALORIES AT HOME & SOCIALLY

- ABV can vary greatly between alcoholic beverages. Beers can range from 0-8.5% but the average is 4.2% ABV. Wines can range from 8.5-15% ABV but the average is 12.5% ABV. Spirits typically are 40% ABV.
- The major source of calories in any alcoholic drink is the alcohol itself. Because beer is the drinks category with the lowest average alcohol content it is also lower in calories.
- Use small wine glasses (125ml) rather than the large 250ml ones. A 750ml bottle will provide 6 small glasses rather than 3 large glasses of wine.
- Because beer is primarily sold in single service containers (bottles and cans) and set glass sizes (pint and half pint) it is easier to keep track of alcohol units.
- Invest in a pouring measure to help keep track of how much you are drinking.
- Consuming alcohol with meals can help control consumption and may even positively affect how the body metabolises the alcohol and calories.

16
STUDIES

INVOLVING MORE THAN

200,000 PEOPLE

CALCULATED THAT THERE IS A

31% REDUCTION IN RISK

OF HEART DISEASE
ASSOCIATED WITH DRINKING A
PINT OF BEER A DAY



Monthly that's

2,080

CALORIES

Or annually

24,960

CALORIES LESS

DIABETES

Moderate consumption of beer may reduce the risk of developing type 2 diabetes by 25%. A study of more than 38,000 men in the US found that when men who rarely drank beer increased their consumption to moderate levels of 1-2 beers a day, after a 4 year period their risk of type 2 diabetes dropped by 25%. There were no benefits found with drinking higher amounts. It seems that beer may protect against diabetes via its beneficial effect on insulin sensitivity (Joosten et al 2010).

BLOOD PRESSURE

While high intakes of alcohol can increase blood pressure, there is accumulating evidence that moderate amounts of alcohol including beer can in fact reduce the risk of hypertension or high blood pressure. A US study amongst nearly 80,000 women aged 25-42 years who were followed for 8 years found that risk of hypertension was 14% lower in women who had moderate alcohol intakes compared to non drinkers. However increased risk of hypertension was observed in women consuming more than 2 drinks per day (Thadhani et al 2002).

SWAPPING WINE WITH BEER COULD HELP CONTROL CALORIE INTAKE

Swapping wine for beer can not only moderate alcohol intake but could save on calories and help in the long-term.

FOR EXAMPLE :

Swapping 2 large glasses of wine with 2 bottles of lager could save 480 calories a week (based on three days drinking a week), 2,080 calories a month and 24,960 calories in a year, assuming no other changes to lifestyle.

See table 6 for calculations

SUMMARY

Drinking beer in moderation provides refreshment and enjoyment so it is reassuring for those who do consume beer regularly to know that it can also be a part of a healthy diet and lifestyle. It is misleading to think that beer is “empty calories” and associated with “beer bellies”.

The evidence for the effect of excessive alcohol consumption on increased mortality and morbidity is not disputed but the growing scientific support that moderate consumption of beer can be associated with health benefits cannot be ignored. Taken in excess it has severe effects on the body and indeed society, however the evidence is clear that when consumed in moderation by peoples who do not have to abstain from drinking alcohol for health reasons, beer may form part of an adult’s balanced and healthy lifestyle.

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TABLES

TABLE 1: Calorie and alcohol content of beverages served in pubs and restaurants

Beverage	ABV%	Kcals/serving	Kcals/serving	Kcals/serving
		Half Pint 284ml	Bottle 330ml	Pint 568ml
Ale	3.8	88	102	176
Stout	4.1	95	110	190
Lager	4.6	104	121	209
3.8% Bitter	3.8	90	104	179
4% Lager	4.0	96	112	193
5% Lager	5.0	110	128	220
	Bottle 275ml			
Alcopop	4.0	171		
		Small	Regular	Large
		125ml	175ml	250ml
Wine	12	96	134	192
White	11.8	93	130	186
Pink	11.0	89	124	178
Red	13.0	99	139	198
12.5% White	12.5	94	131	188
12.5% Red	12.5	98	137	195
		25ml	35ml	50ml
Spirits	40	52	72	104
Spirit and regular mixer (150ml)	40	129	149	
Spirit and diet mixer	40	52	72	
		250 ml	330ml	
J2O	0	80	105	
Coke	0	105	138	
Fizzy orange	0	105	138	
Mixed fruit juices	0	88	130	

From BBPA and www.nutracheck.co.uk

Table 2: Calorie content of foods and beverages compared with beer

Food	Portion	Kcals
Ale ABV 3.8%	Half pint	88
	Pint	176
Stout ABV 4.1%	Half pint	95
	Pint	190
Lager ABV 4.6%	Half pint	104
	330ml bottle	121
	Pint	209
Banana	Medium	143
Apple	Medium	53
Milk chocolate	Bar (49g)	255
Mars bar	Snack size (32g)	175
Kitkat	2 fingers (21g)	106
Chips	130g	224-300
Crisps	Bag (25g)	120
Crisps	Bag (50g)	260
Nuts salt roasted	Bag (25g)	160
Pistachio nuts	25g	150
Take out burger and bun		300-500
Drinks		
Smoothie eg Innocent	Bottle (250ml)	143
Coke	Can (330ml)	142
Orange juice eg Tropicana	Bottle (330ml)	141
Red Bull	Can (250ml)	113
Mocha coffee	Tall (354ml)	344
Cappuccino coffee	Tall (355ml)	168
Latte (skimmed milk)	Tall (355ml)	142
Milk (whole)	Glass (200ml)	132
Milk (semi skimmed)	Glass (200ml)	100
Milk (skimmed)	Glass (200ml)	69
Hot chocolate (semi skimmed milk)	Tall (355ml)	230

From www.caloriecounting.co.uk

Table 3: Calorie cost of 30 minutes of physical activities compared to calories in a half pint of beer

Ale (half pint) ABV 3.8	88 calories
Stout (half pint) ABV 4.1	95 calories
Lager (half pint) ABV 4.6	104 calories

ACTIVITY	CALORIES EXPENDED PER 30 MINUTES
MODERATE ACTIVITIES	
Bicycling (5 mph)	87
Dancing (Ballroom)	105
Golf (2-some, carrying clubs)	162
Horseback riding (sitting to trot)	173
Light housework, cleaning, etc	123
Swimming (crawl, 20 yards/min)	144
Tennis (recreational doubles)	156
Volleyball	132
Walking (2 mph)	99
VIGOROUS ACTIVITIES	
Aerobic Dancing	273
Basketball	225
Bicycling	306
Circuit weight training	380
Football	250
Ice Skating (9 mph)	192
Racquetball	292
Roller Skating (9 mph)	192
Jogging (10 minute mile, 6 mph)	325
Swimming (crawl, 45 yards/min)	261
Tennis (recreational singles)	225
Skiing	345

From McArdle W et al (1986).

Table 4: % contribution of beer and lager to UK diet for vitamins and minerals

Micronutrient	Men	Women
Niacin	10%	6%
Riboflavin	7-9%	3%
Vitamin B6	10-16%	1-3%
Folate	8-15%	1-6%
Phosphorus	4-6%	1%
Magnesium	9-12%	1-4%
Potassium	5-6%	1-2%
Iodine	12-19%	1-8%

From National Diet & Nutrition Survey (2003).

Table 5: Alcohol content of drinks by serving size

750ml bottle of Red, white or rose wine (ABV 13.5%)

contains 13.5% pure alcohol or 10 units.

A small (125ml) glass would provide 1.5 units

A medium (175ml) glass 2.1 units

A large (250ml) 3 units.

Spirits (ABV 40%)

A standard 25ml shot provides 1 unit,

A 35ml shot provides 1.4 units

A 50ml shot provides 2 units

Strong lager (ABV 5.5%)

A pint provides 3 units

A half pint contains 1.5 units of alcohol

Lager (ABV 3.6%)

A pint provides 2 units

A half pint contains 1 units of alcohol

Alcopops (ABV5.5%)

A 275ml bottle provides 1.5 units

From www.nhs.uk/Livewell/alcohol

Table 6: Calorie savings swapping 2 large glasses of wine with 2 bottles of lager a day

BEVERAGE	CALORIES / DAY	CALORIES / WEEK (BASED ON 3 DRINKING OCCASIONS /WK)	CALORIES / MONTH	CALORIES / YEAR
2 large (250ml) glasses of wine	384	1152	4992	59,904
2 bottles of lager	224	672	2912	34,944
Calorie saving	160	480	2080	24,960
Equivalent weight difference (kg)*			0.26 kg	3.2 kg

*The calculation shows that based on drinking 3 times/week, swapping 2 large 250ml glasses of 12% wine with 2 bottles of 4% lager could save 480 calories a week, 2080 calories a month and 24960 calories a year. Based on the assumption that 3500 kcals equates to 0.45kg body fat these saved calories equate to 3.2 kg in a year assuming no other changes in diet, health or lifestyle.

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