

Literature Review

The health benefits of foods are of great interest at the moment, with the government and NHS working together on schemes to create a healthier Britain. The problem is there are many myths about what foods are 'healthy' and why. This stems from potentially misleading messages, which cause incorrect belief systems to build up. One major issue filled with controversy is about fatty meat.

Local businesses are suffering due to these misconceptions, as the public buy produce from the supermarket, rather than greengrocers, fishmongers or butchers. The convenience of a supermarket cannot be changed but the public can be educated about why locally produced meat (which is generally sold in butchers rather than supermarkets) has got health benefits, which can help to change buying habits.

This article aims to help dispel myths about fatty meat, the potential health benefits of buying local meat and how this fits in with a healthy, balanced diet.

It is important to establish what a balanced diet is to fully appreciate the benefits of well reared, local meat. Exact numbers and opinions vary between what precisely constitutes a balanced, healthy diet.

A balanced diet should contain the three macronutrients (carbohydrates, proteins and fats), the micronutrients (vitamins and minerals) and water. All these components aid the absorption and function of one another.

The general consensus of what a balanced diet should be, for an average, healthy person suggests that 50-60% of the total calorie intake each day should come from carbohydrates, 30-35% from fats and 10-15% from protein (Jeukendrup and Gleeson, 2004; Drummond and Brefere, 2007; Mann and Truswell, 2007). For the purposes of this piece of research, fat and protein will be the focus, rather than carbohydrates, which meat does not contain.

As can be seen above, the body does not require very much protein to function healthily; with approximately 10-15% of the daily intake of calories being from protein. Excessive protein can strain the kidneys and be a cause of dehydration (Sizer and Whitney, 2008). Many people on a 'low carbohydrate' diet, such as The Atkins Diet, which focuses on protein based meals, also suffer psychological effects, for example, memory loss, confusion and fatigue (Williams and Schlenker, 2003; Berning and Steen, 2005). It therefore is not considered healthy to have a protein based diet.

There are three main types of fats; saturated, mono-unsaturated and poly-unsaturated. Saturated fats are often labelled as 'bad' fats. However, there are many health benefits of saturated fats, which include cell structure, hormone regulation and body temperature regulation. It is therefore detrimental to health to cut out saturated fat from the diet (Jeukendrup and Gleeson, 2004; Drummond and Brefere, 2007; Mann and Truswell, 2007).

Another, often missed point, is vitamin absorption. Vitamins A, D, E and K are fat-soluble vitamins, meaning without fat, they cannot be absorbed. These vitamins aid in sight (vitamin

A), immune function (vitamin A), bone development (vitamins A and D), calcium absorption (vitamin D), defence against free radicals (vitamin E), protection of cell membranes (vitamin E) and blood clotting (vitamin K).

Lastly, cholesterol (which is found in high quantities in meats, especially beef) causes much controversy, as is often thought of in a negative light. However, cholesterol is incredibly important and is a necessity to function, shown in the fact that it is present in almost every cell in the body, including brain, nerve, muscle, liver, skin and skeletal cells. It aids in making bile acid for fat digestion, maintaining cell membranes, making hormones and producing vitamin D (Drummond and Breferre, 2007).

It has been found that although there is some evidence to suggest a high fat diet causing obesity, it is insufficient and not strong enough to make definitive recommendations for a low fat diet. Having a diet of less than 20% fat can in fact be detrimental to health. Research also suggests that the imbalance of fats creates health problems; in the UK most people eat more saturated fat, without a good mixture of poly- and mono-unsaturated fats to balance it out (Gaessar, 1996; Jeukendrup and Gleeson, 2004).

It is arguable as to whether locally grown, well reared meat has more nutritional value compared to intensively farmed meat.

There is some evidence to suggest that locally sourced meat, which has fewer food miles, may have a higher micronutrient density. This is suggested by research such as Mayer (1997) who noted that in a 50 year period (1930-1980) the mineral content of fruits and vegetables had decreased. One reason could be due to the increased food miles, which can reduce the mineral content as it travels. Although this was based on fruit and vegetables, there is a chance this same theory could apply to meat, meaning the further it has travelled, the less mineral content it will have. Further research would need to be conducted to establish the legitimacy of this. The minerals found in meat include iron, zinc, selenium and coline (Hayes and Laudan, 2009).

Locally produced meat also does not contain any additives, including salt or added water, guaranteeing the freshness of the product as well as the security of knowing there are no 'hidden' ingredients.

Furthermore, as locally produced food in the Peak District is reared outside in natural conditions, it is always pasture fed. A study by Nuernberg *et al* (2008) found that skudde lamb meat contains high levels of essential fatty acids and conjugated linoleic acid. Those reared inside on concentrate had a slower growth than those that were pasture fed. The concentrate lambs had a higher kidney fat content compared to pasture fed. Lastly, although both indoor fed and pasture fed lambs had high levels of essential fatty acids, the pasture fed lamb had slightly lower saturated fat levels, which can be beneficial to those who require a lower saturated fat diet.

Dunsha *et al* (2005) performed a meta-analysis of studies and found that technological advancements have improved efficiency and have made it easier to produce lean meat in

higher quantities. However, due to such a narrow focus of increased yield, the quality of the meat has been negatively affected, meaning more additives are having to be added to improve the standard, an example being vitamin E to improve the colour of the meat. Adding a vitamin may not seem like a negative thing, but vitamin E in particular is a fat soluble vitamin; meaning it can only be absorbed with fat. Therefore adding vitamin E to a lean meat would have no additional health benefits (Jeukendrop and Gleeson, 2004). Locally produced meat generally has a marbling of fat, which means the vitamins in the meat will be more readily available and easier to absorb. Scollan *et al* (2006) showed that grass fed cattle not only increased the amount of essential fatty acids in the meat, but also increased vitamin E content, meaning pasture fed potentially does have more health benefits. They also stated that concentrate fed beef can compromise the health value of the meat, as well as the taste.

Overall, it is debatable as to whether locally produced food has health benefits, but the guarantee of natural rearing, low food miles, no additives and no intensive procedures suggests the meat is of better quality and therefore contains more nutrients, as well as a more natural and healthy balance of fats.

Methodology

This study collected data from multiple sources; internet surveys, asking customers in a local butcher, interviewing a local butcher in Buxton, sending a questionnaire to a local butcher in Tunbridge Wells, and interviewing a local restaurant owner in Buxton.

Internet surveys totalled 11 participants, all female, with an age range of 22-60. This survey was open to everyone over the age of 18. It was advertised on a social network site.

12 customers in a local butcher agreed to partake in the questionnaire; 9 male, 3 female. Their ages range from 31-71+. Questionnaires were done on a Saturday morning until 30 minutes before closing time at approximately 1.30pm.

The questions included finding out information such as shopping habits, perceptions of meat, balanced diet and locally produced food.

These questionnaires included finding out about whether local meat really is best and why, their views on how educated the public are at making good food choices, perceptions of what a balanced diet is and their perceptions of meat.

Results

Two main trends were found, which are relevant to this research. The first is that 83% of participants said they shop where they do for convenience. Further to this, 91% of participants said they shopped regularly at a supermarket.

The second main finding was how misinformed participants were about what constitutes a balanced diet, which subsequently leads to misconceptions about meat.

61% of participants mentioned vegetables when asked 'can you describe a healthy, balanced diet?', compared to only one participant (4%) mentioning the need for fat to be in the diet.

This was followed by 52% of participants mentioning protein and fruits. 22% said a healthy, balanced diet should be low in fat or low in saturated fat. Only one participant said that a healthy balanced diet should contain low/moderate protein.

When asked 'do you prefer lean or fatty meat?', 74% (17 participants) said they prefer lean meat and when asked why 10 of these stated health as a reason, with other reasons including lean meat being low fat (1 participant) and lower in calories (1 participant).

Results from interviewing the two butchers and the restaurant owner showed an improved knowledge of diet, with two out of three acknowledging the importance of fats in the diet. They also highlighted the fact that the science of healthy eating is confusing; with different messages being sent out by the government and media. Although the interviews (and survey) were done individually, there was a consensus that people are not educated well enough to make good food choices or to understand the ethical and potential nutritional benefits of locally produced meat.

Discussion

The key findings of this research show that people do generally shop conveniently and there is a clear gap in knowledge about a balanced diet, and how marbled meat can be part of that. It is unrealistic to try and change the convenience of a supermarket, but it is not unrealistic to educate people, so they can make more informed choices, regarding where they shop, what they buy and why. This may change their shopping habits so they start buying locally more often.

As can be seen in the results, participants perceived a high protein diet to be healthier than high carbohydrate or a moderate fat diet. This can lead to poor eating choices, which lack vital nutrients, such as fibre.

From the interviews with local butchers, it seems there is the view that the messages the public receive about healthy eating are mixed, with one butcher using the example of red meat being 'healthy' one week then 'unhealthy' the next.

This could partly come from biased government/NHS messages from the recent healthy eating campaign. This campaign set out to promote regulating salt intake, cutting down on saturated fats, eating less sugary foods, reducing portion sizes, eating more fruits and vegetables and exercising more (NHS, 2011). Although it is generally accepted that these factors can influence weight, the messages may have been misinterpreted by the public. For example, from the findings, it seems the government message to reduce saturated fat intake, may have lead to people believing low fat or no fat is better.

If issues such as this were resolved by stating that fat is necessary, people would be more open to eating marbled meat, which has been reared naturally and properly cared for after its' death.

Conclusion

If the general public were educated better, they would realise the benefits of low food miles, which include fresher, healthier food, supporting the local economy, the knowledge of where the food has come from as well as the trust that the animal has been reared in good conditions (Hill, 2008). They would also understand better nutritional practices; debunking common myths such as low fat diets are healthy. If these strategies worked, people may be more inclined to make better choices as to where to buy their food; choosing health, quality and freshness over convenience.

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