

## AN ABSTRACT OF THE THESIS OF

Erin M. McGregor for the degree of Honors Baccalaureate of Science in Health Promotion & Education and Honors Baccalaureate of Arts in International Studies presented on May 26, 2005. Title: Cultural Changes Influencing Rising Obesity Rates in France.

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A survey of a non-random sample of adults was conducted in Angers, France to investigate possible cultural changes in dietary behaviors that may contribute to increasing rates of obesity. Participants described contemporary habits regarding eating habits and activity level, as well as attitudes and opinions about obesity. The results largely supported information from previous literature about contemporary habits, such as an increased usage of supermarkets. The results also highlighted differences between generations. These differences were most pronounced for the consumption of convenience foods and eating between meals. In open-ended questions, participants focused on the increased pace of life and subsequent loss of free time. The changes found in the survey suggest a cultural shift in habits relating to weight, including a decreased frequency of traditional meals; increased snacking and availability of food; increased consumption of junk food, fast food, and prepared meals; sedentary lifestyles related to increased use of motor transportation, reduced required activity for daily activities, and increased sedentary pastimes; increased stress and reduced free-time; and a reduction in parental control over the diets of children.

Cultural Changes Influencing  
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# **CULTURAL CHANGES INFLUENCING RISING OBESITY RATES IN FRANCE**

## **CHAPTER I: INTRODUCTION**

### **STATEMENT OF PROBLEM**

The World Health Organization has declared obesity the first epidemic of a non-contagious disease and one of the major public health issues of the 21<sup>st</sup> century.<sup>25</sup> The condition has serious health consequences, including heart disease, cancer, and diabetes, in addition to emotional health problems related to poor self-image or teasing. France, a country lauded for its paradoxically low heart disease and designer-fashion thin inhabitants, is witnessing a rapid increase in its obesity rates. Most recent studies estimate that 12% of the adult population is obese, twice the rate fifteen years ago.<sup>3,7</sup> At this rate of growth, the French obesity rate is projected to reach United States proportions by 2020.<sup>7,24,25</sup> Perhaps most disturbing is their childhood obesity rate, which has more than doubled in the last twenty years to 10-12%.<sup>11,41</sup> France saw its first case of Type II Diabetes in a child in 1999,<sup>25</sup> and the country will continue to see an increase of health consequences as these children grow into adults.

The rates show that obesity is a relatively new phenomenon in France, and one that is particularly afflicting youth. One conclusion is that the rise in obesity rates is related to recent changes in eating habits and attitudes that are largely influencing the younger generations. In fact, while multiple explanations for the rising obesity rates are discussed in the literature, they largely focus around cultural changes. While many poke their fingers solely at McDonald's fast-food restaurants, which have been highly

successful in France, most nutritionists and sociologists are blaming a more general shift in lifestyle and a drift away from the traditional French diet.

In the last twenty or thirty years, France has seen a variety of social changes that influence the way that they eat and live. Work-life is busier, leaving less time for lengthy lunches. Women entered the workforce, decreasing their time available to create four-course meals from scratch. Children are influenced by their parents' busy lifestyle and changed eating habits, and are snacking more and increasing the amount of television they watch. Fast food, processed foods, and soft drinks entered the diet. In particular, prepackaged foods are increasingly common, as a result of having less time for food preparation. Instead of walking to the farmers market, the French are now driving to large supermarkets.

In general, the meal, the central focus of the day and family life, has slowly broken down. In its place is emerging a more "western" or "American" eating style: simplified meals connected by scattered snacks throughout the day. All combined, the cultural changes in France during the last few decades have influenced their weight.

## **RESEARCH QUESTIONS**

The following research questions guided the examination of the increased incidence of obesity in France.

1. In France, how is culture traditionally connected to eating habits?
2. What cultural changes have occurred in France to influence its obesity rates?
3. Why have these changes occurred?
4. What populations are most susceptible to these changes?

5. What are the French currently doing to reverse or counter-act these changes and encourage healthy eating?

## **METHODS & PROCEDURES**

Two approaches were used to address the research questions. A literature review was done to investigate indicators of change, rates of change, possible explanations, and current approaches to lower obesity rates. Academic journals, statistical sources, and major news outlets were included in the literature review to obtain previous research, statistical data, and cultural insight.

Results from a survey provided further insight to investigate the concepts discussed in the literature. The survey was designed to determine possible behavioral or cultural changes influencing weight and was intended to draw insight into the contemporary French lifestyle as it relates to obesity. The intent was not to calculate precise statistics about the lifestyles of the entire French population, but to breathe life into the secondary information discussed in the literature review and to further illustrate the suggested explanations.

### *Question Development*

After an initial review of the literature and press on the indicators and explanations for shifts away from the traditional diet and lifestyle, survey questions were designed to ask a small group of individuals about their personal behaviors in regards to these indicators and explanations. The survey questions ranged from specific inquiries about behaviors to more general requests for opinions. The questionnaire, in French and English, are included in Appendices A and B.

Participants were asked about their meal times and durations. They were also asked about their typical modes of transportation and about their level of physical activity. Participants were asked what physical activities they practiced and how often, or conversely why they did not regularly practice any activity. The intent of these questions was to gather information on their regular activities to describe the contemporary lifestyle. The intent was not to calculate caloric balance; participants were not asked for their own weight or body mass index (BMI) or for records of dietary intake or activity.

A series of questions were also posed to get a sense of the frequency of specific behaviors, such as smoking and drinking, grocery shopping, and between-meal snacking. The questionnaires also asked about the frequency of shopping for groceries at several different types of stores, to measure the most popular food sources of the sample population.

To get a sense of how commonly mothers worked, a possible cultural shift influencing obesity rates, participants were asked about the employment history of their own mother. They were asked if their mother was currently working and if their mother worked when they were a child. The intent of the two questions was to describe the commonality of working mothers and to make inferences into how the rates have changed over time.

Participants were also asked about their opinions or perceptions about various concepts related to weight and cultural changes. Participants were given two word association questions where they were asked to choose words off a list that they associated with “obesity” and “thinness.” The same list of words was given in each question. Participants were also given two open-ended, short-answer questions. The first

asked participants about how they felt they ate differently than their parents or grandparents. The second asked what they thought were the main reasons for France's rising obesity rates.

### *Participant Selection*

Participants were not randomly selected. A convenience sample was made of individuals related to the International Center of French Studies (CIDEF) at the Université Catholique de l'Ouest, a private university in Angers, France. There were only two requirements for participation: the participant had to be older than 18, to be able to give their own consent to participate; and the participant had to have been raised in France, to assure that they would accurately represent French culture.

Participants were approached in person by an American volunteer who speaks French and is currently living in Angers, France. The participants were allowed to complete the survey on their own time. Individuals invited to participate could decline to participate completely or could decline to respond to specific questions. Returned surveys with unanswered questions were accepted, and only the completed responses were used in analysis.

### **ASSUMPTIONS & LIMITATIONS**

It may not be appropriate to generalize these results to all of France. The survey participants were invited to participate through non-random sampling and were all affiliated with a private university in Angers, France.

Because of their affiliation with the university, the participants were likely more educated than the general population, and perhaps were more knowledgeable about health

and nutrition. As a result, they may have had different health behaviors than the general population. They were also likely in a higher socioeconomic level. The university was private, and although the tuition was low for American standards, its student body was likely higher-income than that of the free, government universities. The older participants were also likely higher-income professionals, since they were mostly professors and administrators. While studies discussed in the literature review found statistical differences in weight and behavior in specific professions or socioeconomic status (SES) levels, the categories of students and academics were not separately discussed, so it is unknown if these groups had different lifestyle behaviors than the general population.

## **CHAPTER II: LITERATURE REVIEW**

### **RATES AND STATISTICS**

#### *Prevalence of Obesity*

Overweight and obesity are increasing problems around the world. In the United States, approximately one-third of Americans are obese, and another third are overweight.<sup>34</sup> In Europe, three out of ten adults are overweight or obese.<sup>25</sup> While France had been largely immune to this modern epidemic, their rates have recently begun to rise as well.

In 1990, the French obesity rates were low; 6% of French adults were obese. However, their rates have risen sharply since then. The rates reached 8% in 1997 and topped 10% in 2000. Currently, about 12% – or one out of eight adults – are obese and one-third of the population is overweight.<sup>1, 3, 7, 24, 40, 41</sup> At the current rate of growth, it is projected that obesity rates in France will reach US proportions by 2020.<sup>7, 24, 25</sup>

#### Childhood Obesity

French children are gaining weight as well. The first cases of childhood obesity did not appear in France until the 1920's,<sup>11</sup> and as recently as thirty-five years ago, their childhood obesity rate was a low 3%.<sup>2</sup> However, most estimates put current rates between 10-12% and are as high as 25% in some populations.<sup>2, 8, 41</sup> The adult obesity rate in France will increase as these obese children will likely become obese adults.

### Population Differences

In France, as well as in other countries, obesity is not evenly distributed. Certain populations are disproportionately burdened with extra weight. Regionally, the North and the East are the most afflicted; the South and the Southwest are the least afflicted.<sup>1, 2, 7</sup>

Socioeconomic status (SES) is highly associated with weight. Obesity in France is a disease of the poor. Individuals from household of a monthly income of less than 900 euros have rates twice that of adults living in household making more than 5,300 euros a month.<sup>7</sup> Household income affects children as well. Children of blue-collar workers are over three-times more likely to be overweight than children of professionals.<sup>7</sup> In general, farmers, manual laborers, and the unemployed are heavier, while professionals and technicians are lighter.<sup>31</sup> Proposed reasons for the disparity between SES levels include less knowledge about nutrition and food, and atypical meal times due to work schedules.<sup>2, 35</sup> However, while lower SES levels have higher rates of obesity, it is also important to note that rates are rising across all SES categories.<sup>31</sup>

Age and gender are also associated to obesity rates. Young adulthood is the primary period of weight gain. Between the ages of 20 and 40, obesity rates increase sharply – doubling in some studies. Obesity is most prevalent in older adults. Most studies show rates reaching a plateau in the mid-60's.<sup>19, 31</sup> Men are more likely to be overweight, but women are more likely to be obese.<sup>1</sup> Women may also be more susceptible or influenced by other risk factors. The affect of age on weight gain and the association with SES was more pronounced in women.<sup>31</sup>

### *Costs of Obesity*

Obesity is related to a multitude of other conditions, including cardiovascular disease, high-blood pressure, diabetes, respiratory problems, joint problems, cancer, and emotional issues.<sup>7, 34</sup> In addition to impairing the individual, obesity and its associated conditions also raise medical expenditures. In a country with socialized health care, these costs are of a national concern.

European countries spend between 2-7% of their federal health budget on obesity and related conditions. Estimates of the costs in France range, but the French likely spend between 1-2 billion euros on obesity and related conditions. These costs represent between 0.7-1.5 percent of all money spent on health care.<sup>2, 16</sup> If France does in fact reach US rates of obesity in by 2020, as a 2004 parliamentary report predicts, it will cost 14 billion euros annually for the national health insurance program alone.<sup>24</sup>

### *National Resizing Campaign*

A sign of the increased weight of the French population is the National Resizing Campaign. In a response to consumer complaints about the fit of clothing, and clothing company complaints about high clothing return rates as high as 25 percent, the government is partnering with the clothing industry to measure the contemporary French population and recalibrate clothing sizes. The last time that clothing sizes were set was in the 1970s, and since then the French have gotten both taller and fatter. Volunteers for the campaign are scanned by a machine that accurately measures their dimensions and creates a 3-D computer model of their body. In return, volunteers receive a printout of their exact measurements and the hope of better fitting products in the future.<sup>41</sup>

Results of the \$1.1 million campaign will be used by companies to better design their products – ranging from sweaters, to cars, to bicycle helmets – for the modern French form. The campaign is not intended to promote health. Nor is it intended to define the beauty ideal.<sup>41</sup> However, it does represent the fashion- and size-consciousness of the French people.<sup>11</sup>

### *Health Status*

#### Health Indicators

The French have one of the highest life-expectancies on earth. A baby boy can expect to live 74.8 years, and a baby girl can expect to live to 82.4 years old. A 65 year old man is predicted to live another 16.1 years, and a 65 year old woman has another 20 years of life ahead of her.<sup>21</sup> Despite eating about as much saturated fat as Americans do and smoking more, their cholesterol levels are about the same, and they outlive Americans by about a year.<sup>18</sup>

Their death rate to heart disease is lower, too. In 1993, the death rate from heart disease was 58 per 100,000 deaths, compared to 163 in the United States.<sup>32</sup> However, heart disease accounts for 20% of deaths.<sup>35</sup> As Dr. Dean Ornish, cardiac specialist at the University of California at San Francisco, has pointed out, while “heart attacks are less frequent in France, they are still the leading cause of death.”<sup>9</sup>

#### The French Paradox

As mentioned above, a variety of conditions and diseases are associated with obesity. In particular, cardiovascular disease is a concern. In addition to the world-wide attention the French have received for staying thin despite their high-fat diet, they have also attained notoriety for their equally baffling low heart disease rates. This

phenomenon, popularly known as the French Paradox, deserves some mention, as it is related to diet, and thus obesity.

The cause of the French Paradox is largely unknown. Research into the paradox lead to the discovery that moderate alcohol consumption, particularly of red wine, can reduce the risk of heart disease. But many in the medical and nutritional fields are not completely satisfied by the idea the French wine consumption is the only factor. Some point to differences in the types of fat that the French consume, such as olive oil and goose liver.<sup>9, 18</sup> Other contend that the paradox is simply a result of the French consuming fewer calories overall than Americans.<sup>33</sup>

Another controversy surrounding the paradox, is whether or not the same changes that are making them fatter, are also lessening the effect of the paradox and leaving them more vulnerable to heart disease. An article in *The British Medical Journal* suggests the French heart disease rate will increase soon. For decades until 1970, the French ate much less animal fat and had significantly lower blood cholesterol, but as the French diet grew richer in the 70's and 80's, French cholesterol levels did too.<sup>9</sup> Marion Nestle, nutritionist at New York University, agrees. "The French diet is newly high in fat, and heart disease rates just haven't had time to catch up."<sup>18</sup> However, using data from another source, the Paris-based Organization for Economic Cooperation and Development, asserts that the French were getting 40 percent of their calories from fat in 1965, so their heart disease rates would have already risen.<sup>18</sup> It may take decades more of monitoring death rates and diets to know with any certainty.

## **DISCUSSION OF FRENCH CULTURE**

To begin a discussion of the cultural changes influencing French obesity rates, it is crucial to first explore traditional and contemporary French culture, particularly the cultural aspects related to food.

### *Role of the Meal*

The meal has a special position in French culture. It is more than a means of adequate caloric intake; it is social moment intended to be a daily celebration of companionship and the senses. A proper, or traditional, French meal consists of four courses: a starter, a main course, cheese, and a dessert.<sup>36</sup> This culinary outline is used for both lunches and dinners.

It is culturally important to take care in the preparation and enjoyment of the meal. The action and quality of the meal is an important component of French family life.<sup>28</sup> The family not only eats together for dinner, but for lunch as well. Traditionally, schools and offices have an extended lunch break so to return home for the meal. The meal also serves as an anchor of the family and sets the rhythm of the day. The French have the most consistent eating times of any European country. Meals are typically eaten at the same time: breakfast is at 7:30 am, lunch is served at 12:30 pm, and dinner is at 7:30 or 8:00 pm.<sup>22</sup>

### *Attitudes Towards Food*

As mentioned above, the French do not traditionally view food simply as a source on calories or nutrients. Eating is an event, and food is something that is supposed to be savored. Visitors to France often comment on the attention given to what they eat. The

French have high expectations of their food. They expect what they eat to be satisfying in terms of taste, touch, and satisfaction. They will refuse food that does not meet their expectations, and relish the food that does. Not surprisingly, the French are lauded around the world for their cuisine.

A study by Dr. Paul Rozin, a psychology professor at the University of Pennsylvania, compared the attitudes of French and American subject relating to food.<sup>33</sup> What he discovered was that the French associate eating more with pleasure than with health, while Americans associate eating with nutrition and guilt.

In one exercise, the participants were asked which word they associated with ice cream: delicious or fattening. About one-third of Americans chose fattening, but nearly 80% of the French chose delicious. In another exercise, the participants were given a list of three words: bread, pasta, and sauce, and asked to choose the word that did not belong. The Americans, revealing their focus on nutrients, chose sauce. However, the French eliminated bread, instead forming a meal of pasta and sauce. Another exercise fully displayed the cultural difference in food enjoyment. Participants were simply asked if they would consider taking a pill once a day that contained all the nutrients they required while also satiating their hunger. One out of four Americans said yes, more than twice the percent of French.

### *Traditional Diet*

The French diet is recognized for being one of the best cuisines in the world. Despite their gourmet reputation, low heart disease rates, and low obesity rates, the French diet does not fit what most nutritionists consider a healthy diet. Only 4 percent of French eat a diet that fits with American recommended guidelines.<sup>33</sup> However,

nutritionists do point to specific merits of the traditional diet. The emphasis on whole foods and fresh ingredients ensures high levels of whole grains and low levels of added sugars, salt, and fat. Food is only eaten in the context of three leisurely meals a day, with no second servings or between meal snacking. And perhaps most importantly, French serving sizes are one-third of American portions, meaning that the rich sauces and decadent desserts are eaten only in moderation.<sup>9</sup>

The traditional French diet is richer in fruits and vegetables than diets in the United States or Great Britain; over 90% of French eat them more than once a day.<sup>9, 18, 26</sup> Traditionally, fruits and vegetables are bought at farmers markets or grown in personal gardens, so they are eaten fresh and unprocessed. The French consume two or three times more fiber from whole grains than either Americans or Britons,<sup>9, 18</sup> largely because the grains and produce that they consume is less processed. Bread and potatoes are staple starches in the traditional French diet and are eaten daily.<sup>26</sup>

Cheese is a key component in the traditional French diet and is eaten daily by over half of individuals.<sup>26</sup> The French proudly claim to have developed 365 different varieties of cheeses – one for every day of the year. France has the highest per capita consumption of cheese in the world, about 50 pounds per person annually.<sup>18</sup> The French diet includes more seafood, ham, and processed meats and less red meat than Britons or Americans, with some regional differences in diets.<sup>18, 36</sup> However, meats are traditionally served only during the lunch meal, so the quantity of meat consumed is low.<sup>9</sup>

While the contribution of fat to total calories in the traditional diet is much higher than recommendations, the types of fats consumed are largely unsaturated. Olive oil and nuts, for example, are consumed more frequently by the French and contain fats that

lower LDL cholesterol.<sup>9, 18</sup> Some research also suggests that the fats in duck and goose liver and cheese, consumed in large quantities in France, may make them less damaging to the heart and blood vessels.<sup>9</sup>

Wine, the pride of France, is traditionally drunk daily with meals in moderation. The high consumption of wine in France was the stimulus for research into the role that chemicals in alcohol play in reducing heart disease.<sup>9</sup>

### *Traditional Food Sources*

Historically, the French shop at small neighborhood specialty shops and year-round street markets. The emphasis of French cuisine is on fresh products, because French cooking relies on whole foods and creating meals from scratch. Traditionally grocery shopping is done daily to purchase the items for the day's meals. A daily shopping trip would include a stop at the boulangerie (baker), the boucherie (butcher), a shop selling basics such as cheese and flour, and finally the patisserie (pastry shop). Additionally, twice a week produce or everyday in larger cities, meat, cheese, and produce could be purchased at a street market.

The street market, along with the small specialty shops, defines the French food source. It is a means of purchasing food at its freshest. Unlike the typical farmer's market in the United States, these markets run year round, multiple times a week, and are a primary source of food. In an article for *Health Magazine*,<sup>18</sup> writer Edward Dolnick describes a visit to Les Halles, the largest marketplace in Lyons:

Here at Les Halles, sixty-odd shops sell a gorgeous array of creamy Bries and crusty loaves and vats of olives glistening green and black. There are stacks of France's best chickens, from Bresse, each one with a numbered tag and an *appellation d'origine controlee* stamp, and tubs

of mussels and oysters and shrimp, and towers of deep-purple eggplants and fat, white asparagus spears and tiny green beans.

It's a long way from the shrink-wrapped blandness of an American supermarket. Much of Les Halles looks as if someone has just thrown a bomb in a barnyard. There are *tetes cuites*, enormous, pinkish white pig ears with a bit of head attached, and trays with little lambs' feet and bigger pigs' feet and colossal calves' feet, and seemingly endless displays of hearts and livers and tongues. *Confit d'oie* and *confit de canard*, preserves of goose or duck, are sold in tall, glass jars that look like huge candles, the pink of the bird almost hidden by the white of the surrounding fat.

From this description, it is apparent that the French connection to food is creative, interactive, and centered on what foods are in season and local. Their shopping experiences are not based on convenience, but selection and freshness.

#### *Creation of the Traditional French Diet*

The French diet did not immerge from a vacuum. Their culture of dietary control was developed though a hundred years of federal programs designed to improve childhood nutrition.<sup>11</sup> At the turn of the 20<sup>th</sup> Century, the Industrial Revolution brought hoards of people into the large cities. In the crowded and overworked populations, disease was rampant and child mortality was high. In an effort to improve the conditions, the government assembled a maternal and infant health program called puericulture.<sup>11</sup> The primary intent of the clinics established all over France was to teach mothers to breastfeed; however they also taught that overfeeding was just as dangerous to a child's health as underfeeding. This period began the cultural behavior of using dietary control as a tool for medical health.

At the same time period, the government also began measuring students to send quarterly development charts to their parents, further accentuating the cultural importance of the physical form. Over the next fifteen years, the government developed its role in

improving the health of the public by educating parents on nutrition and encouraging parental control over children's diets. In the 1920s, the puericulturist movement joined with the emerging feminist movement and a prominent home-economist, Augusta Moll-Weiss. The movement began teaching mothers cooking and nutrition. The most central value of the courses was that parental control was necessary for childhood health. They taught that children should eat at set times, meals should be supervised by adults, portions should be small, and there should be no second servings and no snacks.<sup>11</sup> These lessons have are still evident in the contemporary image of proper eating habits.<sup>36</sup>

### *Cultural Value of Thinness*

The cultural belief that the proper physical form was of a thin body likely began with a genetic propensity for thinness and the government programs described above. However it started, the contemporary beauty ideal was officially defined in 1999, when the French choose Laetitia Casta as the new "Marianne," the symbol of the French republic that adorns public buildings. The lingerie model – with her blue-eyes, brown-haired, and 5 foot 7 frame with the measurements of 35-24-35 – is the live model for public statues and murals as well as the image of perfection for the modern French woman.<sup>41</sup>

The cultural value of thinness has created a pressure to be thin, particularly for women. Food and beauty magazines and French television suggest that women in particular remain fixated on getting thin.<sup>41</sup> As evidence of the pressure to meet the beauty ideal, three-quarters of women in one survey thought that they were too fat.<sup>30</sup> A glance at the BMI distribution proves that very few of these women are truly overweight. In fact,

while the country watches its obesity rates rise, more than one woman in five is underweight.<sup>19</sup>

Media coverage of the rising obesity rates have intensified the attention paid to weight. The intense interest of the French people is evident by the success of a highly-popular 2003 reality television show called “J’ai Décidé de Maigrir” (“I’ve Decided to Lose Weight”) which follows individuals for four months as they attempt various weight-loss programs.<sup>41</sup>

The societal fervor pressures women of normal weights, particularly young women, to remain thin or get thinner.<sup>29</sup> At the same time, the emphasis on thinness is particularly difficult on the overweight and obese. There is a clear social stigma towards the overweight and obese, even in the medical community. Too many doctors pass a moral judgment on their overweight patients and offer them only the simple advice “Eat less, it would be better.”<sup>7</sup>

## **INDICATORS OF CHANGE**

With the place of food and weight in French culture, it is reasonable to hypothesize that cultural changes have occurred in recent decades that have altered the way that the French live and eat, causing an increase in obesity rates. Marion Nestle, nutritionist at New York University, points to the French eating more meat and fast foods, snacking more, eating fewer regular relaxed meals, exercising less, and drinking less wine, which has predictably increased their obesity rates.<sup>9</sup> This section will discuss changes in the consumption of individual foods or nutrients, the place of the meal in daily life, and the sources of food which indicate that changes in French culture have occurred.

## *Change in Consumption*

### Wine

Wine is as much the symbol of France as the red, white, and blue flag. Traditionally, it has a place of honor in French culture and is drunk slowly at meals. However, fewer and fewer French are drinking wine regularly – or at all. Wine consumption has dropped to half of what it was a generation ago.<sup>9</sup> Less than 25% of French drink wine with meals any more.<sup>29</sup> While as recently as 1980, 40% of those 14 years and older drank wine daily, the number is half that now.<sup>40</sup> In 1990, half of those 14 years and older reported not drinking wine at all.<sup>40</sup>

While wine consumption has dropped at all age levels, the most significant decline is with the young.<sup>21</sup> Children are now given soft drinks, not wine, and teens and young adults are drinking it less.<sup>9</sup> While in 1980 one-quarter of 25 year olds drank wine during meals, only 5% did in 1995.<sup>40</sup> And the number of young people who do not drink wine at all is increasing. Nearly 70 percent of 14-25 year-olds surveyed in 1996 said they never consumed any wine, compared with 48 percent in 1980.<sup>40</sup>

### Meat

The French consumption of meat has changed in recent decades. Red meat is eaten less; poultry and fish are eaten more. The fears of bovine spongiform encephalopathy contributed to their change in consumption, in part because of changes in their shopping habits that occurred at the same time period. While they may feel comfortable with meat at small boucheries, they are often unsure of the safety of meat at supermarkets. However, the French are buying their food at large supermarkets more often, and are therefore less likely to purchase meat.<sup>40</sup> The “mad cow” scare may be

partly responsible for the drop in meat consumption, but the changes are largely a result of health-consciousness.

Even before fears of tainted meat, the French consumption of beef dropped by 17 percent and the consumption of veal dropped by 28 percent in the 1980s and early 1990s.<sup>40</sup> In a study of adult diets between 1985 and 1995, the consumption frequency of meat, sausages and ham declined significantly, and the consumption frequency of poultry and fish increased in an effort to reduce fat and cholesterol.<sup>35</sup> While the French have been trying to lower their fat and cholesterol intake by altering their consumption of meat, vegetarianism is still uncommon.<sup>40</sup>

### Fats

Some studies show that fat consumption has increased over time, but others argue that it has not. Statistics from the Food and Agriculture Organization of the United Nations show that the French got 28 percent of their calories from fat in 1961, and that current rates are relatively steady at about 40 percent.<sup>18, 21</sup> However, other sources suggest that the French were getting 40 percent of their calories from fat as long ago as 1965, indicating no change in behavior.<sup>18</sup>

While the percentage of calories from fat in the modern French diet may or may not have changed, the types of fats consumed have. A study comparing the diets of French adults in 1985 and 1995 found that while the contribution of fat to total energy intake did not diminish and remained far above the national dietary guidelines, there was a significant improvement in the fat quality of diets. In all SES levels, there was a decrease in the consumption of high-fat and high-cholesterol foods, such as meat, sausages and ham, eggs, butter, whole milk and high-fat cheese and an increase in the

consumption of low-fat and low-cholesterol foods, such as poultry, fish and low-fat dairy products.<sup>35</sup>

### Bread

The international vision of the French is a person with a loaf of bread slung over their shoulder – and the stereotype is not far from the truth. Fresh, crusty baguettes from little boulangeries are a staple of the French diet. Breakfast is bread slices with butter and jam. Lunch may be ham and cheese on a slit loaf. And bread not only accompanies the courses at dinner, but is used as almost as a utensil. However, the per capita consumption of bread has decreased significantly in the last generation. In 1960, the French ate a daily average of 20 ounces of bread per capita; in 1995 they ate an average of only 5 ounces.<sup>40</sup>

Bakers are seeing their business diminish more rapidly as more people buy their bread at supermarkets – often purchasing the fluffy, prepackaged “American” style in bags instead of the traditional types made fresh daily. In particular, the young adults are turning away from the traditional food item. As a response to dropping demand, the baking industry began a campaign in 1995 to encourage more consumption which carried the slogan “If we don't keep eating bread, one day there won't be any more.”<sup>40</sup>

### *Changes in Meals*

#### Meal Composition

Not surprisingly, accompanying the recent changes in diet is a sense of confusion about what defines a proper meal or a healthy diet. This confusion is exhibited by changing meal patterns. The traditional four-course meal was served twice a day in France, for lunch and dinner. Recently the pattern has been changing, and meals are often a more simplified version.

There is division between the contemporary French concept of the “proper meal.” Approximately one-third believe that the proper meal is the traditional four-course meal and eat according to that model. This group largely lives in the countryside and mid-sized towns, work as workmen and middlemen, and are men. Approximately one-fifth believe that simplified meals are ideal and eat accordingly. This viewpoint is more prevalent among women and social groups that are rapidly growing in number: the urban population, white collar employees and executives in the service sector. The nearly-half remaining individuals are unsure of the proper meal.<sup>36</sup>

There are also differences between perceptions of what defines a healthy diet. Although the majority claim to try to eat a balanced diet, there is no universal concept of what a balanced diet is. Over half reference a nutritional model, but they are largely unsatisfied with the guidance that it offers. Nearly one-quarter eat foods that “feel right.” By following cravings and eating what tasted good, this group has fewer feelings of guilt associated with specific foods. Nearly 20 percent describe a healthy diet as one that limits certain foods or nutrients, most commonly fat, sugar, red meat, or sauces. Only 2 percent believe that the traditional French diet is a model for healthy eating, despite the fact that the plural majority felt that it is the proper meal.<sup>36</sup>

A study of contemporary French meals found that dinner was the meal most often simplified. Two-thirds of individuals ate a simplified dinner, often in the form of a meal with no starter, a single-course meal, or a meal without a main course or vegetables. Deserts were often not included in the meal, but eaten sometime later at night. An important cultural note is that even though dinners were simplified, they remained an important part of family life.<sup>36</sup>

Meals were sometimes skipped entirely: Breakfast or lunch was skipped about 5 percent of the time; dinner was skipped more frequently, about 8 percent of the time. Fifteen-percent of participants took only a hot beverage for breakfast. Meals were typically simplified or skipped as a means of regulating food consumption. However, the removal of the peripheral courses reduced the consumption of fruits and vegetables and increased the amount of snacking in the day.<sup>36</sup>

Simplified meals were more commonly eaten by certain populations. Meals were more frequently simplified amongst the urban respondents, women, executives, and white-collar employees.<sup>36</sup> These populations may be more likely to be less traditional, more rushed, or more concerned about weight. There may also be a generational difference in meal types. A woman in her 80s who has always prepared the traditional meals for lunch and dinner is appalled at her granddaughter's more contemporary meals.<sup>40</sup> "My husband always wanted a carefully composed meal at fixed hours, and we always had wine," she explains. "I can't get over how my granddaughter cooks. She will fry a couple of crepes and maybe a bit of ham, with a salad, and call that dinner."

#### Place and Duration of Meals

As the composition of the meal changes, so is the location and time spent on meals. While the norm is still the traditional behavior of eating leisurely meals at home, practices are changing. The lunch meal is the meal most changed. Nearly half of French eat their lunch somewhere other than their homes at least once a week. Living in an urban area, having both spouses work, and commuting are factors influencing eating away from the home.<sup>40</sup> The most common place for the out-of-home meals is the office. Fifteen-percent of French bring their own lunch to eat in their office, mostly women in high-level

positions who adjust the time spent eating to balance their work and family responsibilities.<sup>26</sup> Changes in place and duration of the lunch meal influences what is eaten as well. Traditionally meat was only served at lunch because it was the largest meal of the day. But now that families may only eat together at dinner, lunches are simpler. Many individuals often eat only potatoes and vegetables for lunch.<sup>40</sup>

Contemporary French often feel too busy to have a traditional meal during the week because of the time required to prepare and eat it. However, weekend meals still have the traditional structure and slow-pace. As one researcher notes, “the socialized and ritualized meal is only possible in leisure time nowadays.”<sup>36</sup>

### Snacking

There are specific snacks in traditional French culture, including *le gouter* eaten at about 4 o'clock in the afternoon and the drink taken before a meal called *l'aperitif*. However, the French have very negative associations with snacking out of a social context. The image of snacking is that of a solitary and compulsive eater.<sup>6</sup> In one survey, four out of five French adults said that eating between meals “can be a problem” and over half of respondents said that it is “a very bad thing.”<sup>36</sup> In an interview with *the New York Times*, the activist Jose Bove was highly critical of Americans “eating all day long.”<sup>12</sup> Despite these poor feelings towards snacking, it is increasingly common.<sup>18</sup>

In one study, three-quarters of participants admitted to eating between meals and over 40 percent acknowledged eating five or more times a day. The researches noted that the participants expressed feelings of guilt while describing their snacking activities. Given the cultural stigma values in France, it is not surprising that while most participants believed that they ate three meals a day, only 22 percent actually did.

However, contrary to the belief that snacking is a highly-antisocial behavior, the majority of snacks (55%) were foods eaten in social situations at work. Thirty-percent of snacking was done at home.<sup>36</sup>

### *Change in Food Source*

#### Shopping at Supermarkets

While the traditional means of food shopping is making purchases of fresh items at small specialty shops and street markets, it is increasingly common to go shopping at large shopping centers and supermarkets. These stores sell items that may not be as fresh or high quality, but they are more convenient. Sixty-five percent of the French buy most of their food in supermarkets.<sup>40</sup> While the shopping centers are more convenient because all the products are in one store, they are not as close to homes. So instead of walking to nearby neighborhood markets, they are driving to larger supermarkets.<sup>9</sup>

#### Processed and Prepackaged Foods

Contrary to the traditional cooking methods of creating home-cooked meals from fresh ingredients, prepackaged/prepared foods are finding a market in contemporary France. In the last fifteen to twenty years, the consumption of prepackaged foods have increased at all SES levels.<sup>23, 35</sup> The increased consumption of these foods affects their nutrient consumption. As prepared foods enter their diet, the French consume fewer and fewer complex carbohydrates and more of the simple sugars contained in prepared dishes, cakes, and cookies.<sup>23</sup> Seventy-percent of simple sugars in the contemporary diet come from processed foods,<sup>8</sup> mostly through soft drinks, fruit juices, and dairy desserts.

### Fast Food

Journalists and cultural anthropologists observe that fast food restaurants like Pizza Hut and McDonald's are sprouting at prominent street corners and their pizzas and hamburgers are served not to American tourists – but to French families.<sup>9, 18</sup> As hordes of French visit these restaurants daily, their countrymen are striking out against them with harsh words, angry protests, opinion articles, and occasionally vandalism and violence. McDonald's hamburger restaurant has become the lightning rod for these attacks by being a recognizable and successful icon of the American fast food presence in France.

McDonald's first French franchise opened in 1979, and the chain flourished.<sup>10</sup> Now there are more than 1,000 restaurants in France, and each year 30-40 new restaurants open and are highly successful.<sup>12, 15</sup> McDonald's dominates the restaurant sector, dwarfing its competitors, such as the Belgium fast food chain Quick. In fact, the French chain is McDonald's most profitable subsidiary.<sup>10</sup> In 2001, a year where McDonald's global net profits fell by 17%, its French profits were up by almost 10%.<sup>15</sup>

The chain has been successful because of its attempts to appeal to French tastes and culture. The restaurants offer versions of French foods, such as a *croquet monsieur*, and decorate their stores to suit French fashion. The chain even replaced their spokesman Ronald McDonald with the cartoon character Asterix, who represents Gallic independence and is popular with both children and adults.<sup>15</sup> Eighty-percent of the products used by the restaurants are from French farmers, and McDonald's France has run advertisements with the number of French cows, chicken, lettuce and tomatoes it uses each year to sooth French concerns about national agricultural interests.<sup>10</sup>

However, few French will admit to eating at the restaurants. Contrary to the sales and profits of the company, only 5 percent of participants in one survey would report eating their products.<sup>40</sup> As Jean-Pierre Poulain, a sociologist at the University of Toulouse, described, if seen leaving the restaurant, the French “often behave as if they just got caught leaving an X-rated movie.”<sup>12</sup>

Negative feelings towards the chain cause more than biased survey results. The restaurants are also the focus of protests and activist actions, stemming from US-France trade issues and concerns about the loss of traditional French culture. In an article for the *Harvard International Review*, Gina Kramer describes the multifaceted resistance:<sup>27</sup>

The anger behind the protests stems from a set of inter-related issues: escalating trade tensions about the importation of hormone-treated beef, disputes over the openness of European Union markets to US goods, and French fears of the decay of their national culture as US culture burrows deeper into French society. Both because it sells large quantities of beef and because it symbolizes US culture, McDonald’s has become a focus for dissent.

The face of the anti-McDonald’s movement is Jose Bove, a union leader and sheep farmer. He became famous after a 1999 attack on a McDonald’s in Millau, France one month after the United States raised tariffs on Roquefort cheese, *foie gras*, and other luxury imported foods. To protest what he considered an unfair tariff, he organized other activists at the McDonalds. Protesters chanted “*McDo dehors, gardons le Roquefort!*” (McDonalds get out, let’s keep the Roquefort) and tore down half the restaurant’s roof with tractors. His attack struck a chord with the French masses by touching on deep concerns about the influence of American business on French culture and economy, and after the attacks he was glorified in the press for standing up for France in the face of globalization. Even government officials have applauded his work, including President Jacques Chirac who declared that, while he disagrees with Bove’s violent tactics, he

agreed with his message. The president added that he also “detests McDonald’s food.”<sup>12</sup>

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McDonald’s has reacted to the protests through media campaigns to improve their public image. They have publicized their support of the French economy by highlighting that the French franchises are owned by the French, employ French workers, and almost exclusively sell food grown in France.<sup>12</sup> And in a controversial move, the McDonald’s France subsidiary ran a large advertisement in *Femme Actuelle*, a popular women’s magazine, urging parents to limit their children’s meals at fast food restaurants, including McDonald’s. Not surprisingly, the parent company in the United States was greatly upset by the maneuver. As a response to the ad, a company released a press statement which said “This is the opinion of one consultant in France. We do not share this view at all.”<sup>42</sup>

The obvious friction between the French and McDonald’s, as well as the chain’s success in the country, is an example of the conflictive relationship the French have with fast food in general. While on an intellectual or political level, they strongly disagree with its influence and products, they continue to visit the restaurants in increasing numbers. This is another example of how the French behaviors have changed more quickly than their attitudes.

## **CULTURAL EXPLANATIONS FOR CHANGE**

Previous sections have discussed measurements of increasing prevalence of obesity in France, the relationship between culture and food as it relates to the French, and indicators of changes in eating patterns. The following section will explore cultural changes that could have influenced the rise in obesity rates, mainly by influencing eating

habits or activity. Multiple explanations have been proposed in popular culture, newspapers, and research articles. Many of these explanations focus on the Americanization of the French lifestyle; nearly all explanations involve the breakdown of the traditional culture.

#### *Availability and Convenience of Food*

Food has become more available and convenient through the introduction of fast food and prepackaged foods.<sup>7</sup> Snacks are increasingly common in workplaces, and vending machines are increasingly common in schools until they were recently banned. Before the ban which went into effect this year, there were 8,000 vending machines in 40 percent of the schools in France.<sup>14</sup> An abundance of available food leads to “vagabond feeding,” which is the breakdown of the traditional meal structure in favor of snacking throughout the day and when the eater is in complete control of what and when they eat.<sup>36</sup> The relaxation of control over calories consumed both inside and outside of meals can lead to an excess of total calories consumed, leading to weight gain.

Fast food and prepackaged food are also generally high in fat, particularly saturated and trans-fatty acids, and high in simple sugars. Because of this, unmonitored consumption of these foods will lead to weight gain. A Japanese study in 1992 showed that the incidence of Type II Diabetes, a disease related to obesity, was positively associated with the number of Big-Macs sold.<sup>25</sup> The increasing popularity of these foods of low nutrient density, is likely contributing to obesity rates.<sup>7</sup>

*Faster-Paced Lifestyle*

The notoriously slow-paced lifestyle in France has sped up.<sup>40</sup> Stress levels are an indication of feeling rushed, and studies show that the French are feeling stressed. On average, 45 percent of adults report feeling stressed. The percentage peaks at age 45-54, where 55 percent are stressed.<sup>20</sup> This is also the age where BMI peaks, suggesting a relationship between the two. Some blame globalization and the influence of the American economy for the increased pressure.<sup>12</sup> But regardless of the cause, the reduction in free-time has challenged traditional eating habits.

A hurried day means less time for shopping and food preparations, which can lead to simplified meals and an increased consumption of prepackaged and fast food. An increased consumption of these foods has been documented. Less free-time also means that there is less time for leisurely traditional meals in the home. Lunches in France, traditionally a time to leave work or school to eat at home, have changed. It is more common to eat lunches away from home, particularly in the office, and the time available for lunches has decreased.<sup>12</sup> The effect of the faster-paced life in France is that the traditional meals are now largely enjoyed only on weekends.

There are also concerns of health professionals, such as Dr. Arnaud Basdevant, head of nutritional services at the Hôtel-Dieu in Paris, and a founder of the French National Nutritional Health Program (PNNS), that individuals may be using food to manage their stress and anxiety, leading to increased caloric intake and subsequently obesity.<sup>7</sup>

*Women Entering the Workforce*

The traditional French diet requires a large time commitment for the daily shopping and preparation, even before the food can be leisurely enjoyed. The female head of household would have traditionally been the one to put in this time. Like most Western countries, the women in previous generations typically stayed at home to complete domestic duties such as shopping and meal preparation.<sup>8</sup> But in the last generation, women in France entered the workforce in significant numbers. In 2002, a little over half of adult women worked outside of the home as wage earners. One-third of these women were part-time workers, and women with children worked an average of 2.5 hours per day. While this time commitment is low and France's female employment rate is one of the lowest in Europe,<sup>22</sup> the movement of women's energies outside of the home is widespread enough to possibly influence the culture on a population level.

One reason that even rather small changes in a woman's schedule could have profound influences on family life is that, on average, women are responsible for two-thirds of the times spent on domestic work in French families. Although over 50 percent of women work outside of the home, 84 percent prepare the family meals; only 40 percent of men are involved in meal preparation.<sup>22</sup> A reduction in free time to prepare traditional four-course meals from scratch likely influences their children's eating habits as well, because women are also overwhelmingly responsible for child care.<sup>22</sup> By having less exposure to traditional eating habits, their children are more likely to adopt contemporary habits, including snacking and convenience foods.

Children are more influenced by their parents eating habits than adults are influenced by the eating habits of other adults, and the role modeling of their parents is

even more influential than general cultural norms.<sup>4</sup> Because of this, the changes that parents have made to accommodate their rushed lives are greatly influencing the model of proper eating that children are seeing and incorporating into their habits.

Statistics show while homemakers are more likely to be obese than professionals. However, so are manual workers.<sup>31</sup> Similarly, the children of high-wage earners have low rates of overweight, while the children of blue-color worker are significantly more likely to be overweight. It is likely that families with two working parents at all SES levels are affected by the reduction in meal preparation time, but that individuals in higher SES levels have greater access to nutritional information, more healthful foods, and opportunities for physical activity that can mitigate the negative influence of two employed spouses, while the lower classes cannot.

### *Sedentary Lifestyle*

In addition to changes in eating habits, daily activity levels have changed in recent decades. Dr. Arnaud Basdevant also suggests that the increase in motor transportation and sedentary activities are contributing to population-wide increases in obesity.<sup>7</sup>

### Automobile Transportation

As shopping shifts to larger supermarkets outside of neighborhoods and as commuting to work becomes more commonplace, motor transportation has become more integrated into everyday life in contemporary France. Now 10 percent of French commute to work, and in nearby Belgium adults spend about one hour a day in the car.<sup>22</sup> In the United States, the only factor perfectly correlated with the increase in obesity is the number of cars in circulation, and it could be the same for France.<sup>25</sup> The increased

reliance on motorized transportation, and related decrease in man-powered transportation, reduce caloric output and raise obesity rates.

### Television and Computers

Recreational activities are increasingly sedentary as well. Television watching and computer usage in particular are increasingly common in contemporary lifestyles. More than three-quarters of French adults watch television everyday. The prevalence of daily television watching has remained relatively constant in the last fifteen years, but the quantity of time in front of the screen has increased. Since 1989, the average amount of television watched increased by two hours per week.<sup>13</sup> On average, French adults spend half their free time, or over two hours a day, watching television or videos.<sup>22</sup> They spend about 40 hours a week watching television, going to movies, or listening to music.<sup>13</sup>

Children are also spending significant amounts of time watching television. Like their parents, French children watch two hours of television per day on average.<sup>37</sup> Studies of French middle school students show that television watching is significantly correlated with being overweight. Overweight students were more likely to watch television during their free time and more likely to have a television in their room.<sup>5</sup>

Computer usage in France is less widespread than in the United States. While 90 percent of French homes have at least one television, only 20 percent of homes have an internet connection indicating a small percentage of homes with computers.<sup>37</sup> The average amount of time spent on a computer is about five minutes a day for adults aged 20 and older. However, this rate is manipulated by substantial difference between age and gender groups.

The highest rates of use are in young men aged 15-24 years, who spend nearly a half an hour a day on the computer.<sup>22</sup> The rates for younger teenagers are similar.<sup>37</sup> In comparison, older adults use a computer for less than one minute a day.<sup>22</sup> These differences in rates clearly show a generational difference in free time, indicating a cultural shift towards high-tech entertainment. One reason that French rates of computer usage are low is that the equipment and infrastructure is less modern than other countries with higher rates of usage, such as German, Great Britain, and the United States.<sup>37</sup> As their infrastructure and home computers are updated, their rates of usage will likely rise, increasing the time spent in sedentary activities by the younger generation.

### Exercise

As physical activity levels in daily activity decrease, intentional exercise needs to be practiced to balance caloric intake. Because obesity rates are rising, it is likely that most individuals are not participating in adequate exercise. On average, French adults spend about thirty minutes a day in some form of physical activity. While at first these rates seem optimistic, in reality activity levels are much lower. The majority of this time is walking, the traditional mode of transportation. Less than ten minutes a day are spent in exercise, a higher-intensity activity. Most importantly, this average does not properly reflect the activities of a typical person because only one-quarter of adults engage in any physical activity. This means that one-quarter are engaging in high levels of daily physical activity while three out of four people are not engaging in any.<sup>22</sup> While the cultural shifts have increased the amount of sedentary time in the daily routine, it has not yet been matched by a parallel shift towards conscious efforts to increase time spent in exercise.

### *Food Marketing*

Along with an increase in television watching comes an increase in food advertising. In the first quarter of 2004, commercials for food products represented one-third of money spent on television advertising.<sup>39</sup> The aggressive marketing of food products, primarily for processed foods or foods of low nutrient density, has caused a public uproar. At the center of the controversy is the marketing directed specifically children.

Children are exposed to large amounts of marketing for foods of low nutrient density in commercials during children television programming. The French anthropologist Annie Hubert voices the opinion of many French when she complains, “children are the victims of aggressive marketing by food companies.”<sup>30</sup> One study found that on a single Wednesday afternoon (elementary schools in France are let out early on Wednesday afternoons, so television programming at that time is largely directed towards children, similar to Saturday mornings in the United States), children ages 6-12 years old saw as many as 192 commercials. Sixty-percent of these commercials were for food products.<sup>39</sup> Another study of children aged 11-18 years found that half recognized that commercials were influential in making them want to buy the products. Eighty-six percent thought that there were too many commercials on television.<sup>39</sup>

### *Less Parental Control*

However, representatives of food companies argue that it is parents that are responsible for monitoring their children’s food choices. While this defense is likely motivated by business interests, there is truth to it as well. Dietary control is a major component of the traditional diet ability to keep the population thin, and parents are the

key to continuing the habit in the next generation. The Puericulturist movement at the turn of the 20<sup>th</sup> century was the driving influence on the development of the role of parental control over children's diets which maintains the cultural value of moderation. A loosening of parental control over children's diets would be the broken link in passing on the traditional diet, leading to a change in eating patterns in the younger generation.

The producers of food products are not the only ones pointing out that parents may be relaxing their control of children's food choices; the popular media has criticized them as well. The major French newspaper, *Le Monde*, ran an editorial cartoon showing an obese child eating while watching television as his parents look on saying, "He eats whatever he wants."<sup>11</sup> And in an article about vending machines in schools, also in *Le Monde*, a high school student is quoted as placing the blame for the consumption of foods of low nutrient density not on the presence of vending machines, but on parents using food to appease children. "The problem is the small ones," she says. "When they cry, the parents give them a cookie. The parents give what the kids want, when they want it. And the bad habits remain."<sup>14</sup>

The French have relaxed the code of conduct at the table by allowing children to have more influence on the selection of foods and the hours of the meals.<sup>28</sup> For example, simplified meals often cut out side dishes that are rich in fruits and vegetables and later supplemented by snacking.<sup>36</sup> Children raised on simplified meals will then develop a diet low with inadequate fruit and vegetable content and high in snack foods. Adults are also increasingly skipping meals; twenty-percent of adults in one study either only drank a beverage or skipped the meal entirely.<sup>36</sup> Children who skip breakfast are almost twice as likely to be overweight as children that eat it every morning, probably because skipping

the meal leads to snacking late-morning because of hunger.<sup>4</sup> While the traditional French breakfast is light, it may be a critical meal during the day, and if children are influenced by their breakfast-skipping parents, it may increase their likelihood for obesity.

### *Other Explanations*

Various other cultural explanations for recent increases in obesity appear in popular media or academic journals. The following are explanations are either unsubstantiated, difficult to defend with current data, or outside of the realm of culture. However, they offer insight into other ideas about influences on diet and weight.

#### Changes in Population Demographics

Obesity is related to several demographics, including gender, age, region, and socioeconomic status. One set of researchers suggest that changes in demographics could partially explain increases in obesity rates for France as a whole. They point specifically to changes in the distribution of age and SES between 1980 and 1991.<sup>31</sup>

#### Health-Consciousness

In recent decades, and particularly as obesity rates have risen in the last fifteen years, the French have become more health-conscious.<sup>40</sup> A 1996 survey found that the second most common way that adults tried to improve their health was through improving their diet, after physical activity and before smoking cessation.<sup>35</sup> Changes that they make purposefully with the intent of improving their diet may actually have the unintentional effect of making their diet less healthy. For example, simplifying meals, typically done with the intent of reducing caloric intake, often results in a reduction of fruits and vegetable traditionally consumed in side dishes and an increase of simple sugars and fat in snack foods after the less-satiating meal.<sup>36</sup>

Another example of misguided efforts is attempting to reduce fat intake. The French diet gets about 40 percent of calories from fat – far above recommended guidelines. However, the fat is mostly unsaturated fats which increase HDL, or “good” cholesterol. Low-fat diets often reduce these kinds of fats and proportionately increase saturated fats and LDL, or “bad” cholesterol.<sup>18</sup> Improper dieting is a third example of how concerns about weight may actually lead to increased weight gain. Cycles of severe dieting to rapidly loose weight is often followed by increased weight gain when the diet ends. This type of dieting, termed “yo-yo dieting,” has been shown to cause a net gain in weight.<sup>30</sup>

#### Changes in the Nature of Foods

Some believe that the actual foods being eaten by contemporary French may be at least partly responsible for the population-wide increase in weight. This explanation is heard from small-agriculture activists who oppose the importation of non-French produce and products, particularly genetically modified foods, such as Jose Bove, the sheep farmer made famous by his attack on a McDonald’s restaurant in response to the globalization of the French food market. His words have resonated with like-minded French.<sup>12, 24</sup> One French researcher concluded in an article in *Appetite*, that “it is simply unknown whether any qualitative imbalances in the contemporary French diet stem from the fractionalization of food intakes, or come from the nature of the food consumed.”<sup>36</sup>

### **CURRENT APPROACHES TO STOPPING THE EPIDEMIC**

With the staggering rates of obesity in the United States in the forefront of their minds, the French have wasted no time in taking action to slow or even reduce their

obesity rates. The French government has been active in setting goals for nutritional and general health improvement, doing research, and establishing organizations to guide national efforts. In response to worrying increases in childhood obesity, many of these laws, policies, and objectives are focused on affecting the eating habits of children and adolescents.

#### *National Nutritional Health Program*

In 2001, the national government established the National Nutritional Health Program, or Le Programme National Nutrition Santé (PNNS), to improve the health of French citizens by improving their nutrition.<sup>7, 17, 41</sup> The program is under the direction of the Prime Minister and is coordinated by the Secretary of State for Health and Disabilities and the governmental agencies responsible for education, agriculture and fisheries, research, children, physical activity, and consumers. At its inception, the program set nine objectives for 2001-2005 that aim to improve the nutrition and general health of French citizens.<sup>17</sup> These optimistic goals focus largely on factors related to nutrient consumption, activity level, weight status, and disease states related to weight. Results will likely not be available until next year.

#### *2004 Parliamentary Report*

In April 2004, a report was made to the French parliament partly in regards to the current situation of obesity in France. The report by Senator Claude Saunier to the Office for the Evaluation of Technological and Scientific Choices outlined several suggestions for combating obesity. It recommended forming a national agency whose specific mission is to lead the anti-obesity fight. The agency would be funded through a tax on

foods that exceed certain limits in terms of calories or fat content, with the idea that those taxes would also influence healthier food choices for financial reasons. The report also supported encouraging better eating habits by regulating food advertising. The need for further sociological research on French attitudes and behavior toward food was also stressed in the report.<sup>24</sup>

### *Food Labeling*

The Agence Française de Sécurité Sanitaire des Aliments (AFSSA), the French agency for food safety, is taking steps to get nutritional labels on food products. The motivation for labeling is to help consumers make educated decisions on choosing foods. In particular, the agency wants to clearly label the sugar content of the food. Studies show that the French are consuming fewer complex carbohydrates and greater amounts of complex sugars, a trend that corresponds to increased consumption of snack foods and processed foods.

The potential design of the labels is still in research and development stages, but the agency has decided that it wants the labels to be educational as well as informative. The labels would include terms such as “complex,” “simple,” and “added” when describing sugars to educate consumers nutrition. However, while considering listing the glycemic index rating of foods, the agency workgroup responsible for developing the label design decided that the index was too complicated for consumers, at least for the time being.<sup>23</sup>

### *Regulating Food Advertising*

One of France's health objectives is to regulate messages about food products in advertisements aimed at children. Many nutritional and child health advocates are angered by the information about food that children learn from commercials for food products and want to ban or severely limit advertising, particularly for candy or foods high in sugar.<sup>8</sup> Children are exposed to extremely large amounts of advertising, and "in those commercials, children learn nothing about food, much less nutrients," as researcher Maryvonne Masselot comments, echoing public opinion.<sup>39</sup>

The French government agrees. AFSSA wants to limit advertising during children's television programming.<sup>23</sup> And PNNS was behind an effort to require food companies who advertised food products to pay for equivalent time of public service announcements on healthy eating and nutrition.<sup>7</sup> This effort was strongly opposed by food producers, who succeeded in reducing the penalties. The final form of the law, passed in 2004, requires food product advertisers to pay 1.5% of the funds they spend on television ads directed at children to the National Institute of Prevention and Education for Health that will use the funds to pay for nutrition education.<sup>3, 6, 39</sup>

### *Foods of Low Nutrient Density Taxation*

France has adopted taxation as another means of influencing the consumption of certain foods. In 2004, the French parliament passed a law that would tax foods of low nutrient density if the producers do not advertise health warnings on the packages. Much like taxes and warnings on cigarette in the United States, this law is intended to increase the consumer's awareness of possible risks of consuming the product, discourage

consumption because of increased cost, and to fund an agency to oversee the national nutritional objectives with the tax proceeds.<sup>14</sup>

The country has shown that taxation is an effective means of lowering consumption. In 2000, France became the first country to tax bottled “mixed drink” that combine hard alcohol with juice or soft drinks.<sup>14</sup> The intent of the tax was to decrease the consumption of these drinks by teenagers, because of concerns that the excess calories from the drinks were a cause of rising obesity rates among adolescents. A study by the World Health Organization (WHO) showed that the consumption of these drinks among adolescents has decreased since the tax went into effect. Dr. Klaus Hurrelmann, head of the collaborative center on childhood and adolescent health of the World Health Organization in Germany, supports such laws. “Taking the success of this measure as a case study, it is a hint that this type of policy does work,” he says.<sup>14</sup>

### *Training Medical Professionals*

France is training medical professionals to best treat their obese patients. Doctors and nurses are trained on screening, prevention, and treatment of obesity, as well as attempting to breakdown the stigma of obesity to improve patient outcomes. In particular school nurses are being trained in screening for obesity and special care for obese children.<sup>41</sup>

### *Focus on Schools*

France has taken particular notice of the significant increases in obesity rates among children and adolescents and the risks that they impose on the future health of the country. A goal of PNNS is to completely stop the increase in obesity in the younger

generation. To do this, the government and schools are partnering to maximize the opportunity to affect the eating habits of students.

#### Banning Vending Machines

By enabling students to snack on foods of minimal nutritional value throughout the day, vending machines in schools have become the focus of anger surrounding youth obesity. An article in the magazine *Le Figaro* expresses this sentiment:<sup>8</sup>

From breakfast to dinner, including mid-morning and evening snacks, sugar dominates our diet...It is incomprehensible that the school, an apprenticeship of life, has allowed itself to be invaded by machines spewing chocolate bars, cream puffs and cakes coated with chocolate or caramel.

After campaigns by nutritional advocates, including PNNS, the French national assembly approved a bill that would entirely ban vending machines accessible to students from schools. Lobbyists for the food industry attempted to reduce the harshness of the law, as they had done with the food advertising bill. The food industry pushed changes that would allow vending machines to stay, but regulate their content. They argued that it was unreasonable to not allow vending machines when it was the food inside that was the problem and the schools benefited from the food profits.<sup>6</sup> Despite the intense opposition, the original bill was made into law and will go into effect for the 2005-2006 school year.<sup>3, 14</sup>

#### Nutrition Classes

Responding to the younger generation's disconnection with traditional eating habits, schools have begun to reeducate their students in the ways of traditional French culture. To combat the influence of rushed meals and snacking on processed foods, elementary schools are now integrating nutrition courses that instruct children on the traditional concept of healthy eating.<sup>14</sup>

One of the first of these types of courses began in the early 1990s. The program was developed by Jacques Puisais, president of the French Institute of Taste, and was organized by the National Council of Culinary Arts, which was established in 1989 by then Minister of Culture, Jack Lang.<sup>38</sup> In the ten, ninety-minute courses, 10 year-old children were instructed on the five senses, the four tastes, meal preparation, gastronomy, and regional cooking. In the final class, the students prepared a meal of their own. The intent of the course was to instill in the children an appreciation for fine food and traditional French cuisine – to create *petit-gourmands*. While the primary objective of the courses was not to lecture about nutrition, it was hoped that the reestablishment of the traditional eating habits would have the secondary effect of lowering obesity rates among children. While the long term effect of the courses on participants' weight status is unknown, informal assessments showed that the children's diets did become more varied and that they were more involved in meal preparation at home.<sup>38</sup>

That result alone would be considered a triumph for the French, who are as concerned about preserving French culture as directly prevention obesity. As then Minister Lang pointed out, “France has developed the art of living which we all need to rediscover and safeguard.”<sup>38</sup>

## CHAPTER III: RESULTS

### SURVEY PARTICIPANTS

Thirty-one participants completed the questionnaires. The participants were all associated with the university in some manner. The younger participants were largely graduate students in the Teaching French as a Foreign Language program. The older

**Table 1: Participant Demographics**

	n	%
Total	31	100.0%
18-24	11	35.5%
25-34	8	25.8%
35-44	6	19.4%
45+	6	19.4%
Male	7	22.6%
Female	24	77.4%

participants were mostly professors, with some administrators and host parents of international students also participating.

The participants ranged in age from 18 years to 61 years old, with a mean age of approximately 30 years (Table 1). For the calculation of age-comparison

statistics, the participants were broken into four groups: 18-24 years-old, with 11 participants; 25-34, with 8 participants; 35-45, 6 participants; and 45 and older, 6 participants.

The gender distribution was not as even. The majority of participants were women. Only seven participants were male, and most of these were in the older age categories. While the two older age categories consisted of 33% male participants, males made up only 12.5% and 18% of the 25-34 and 18-24 year age groups, respectively.

While the age distribution of survey participants was favorable to examining differences between age groups, the gender distribution was not. The gender ratio difference may have confused some age comparisons, since differences may reflect

lifestyle differences between men and women rather than between younger and older generations.

### **MEAL TIME AND DURATION**

Responses to questions about meal times and duration were consistent among the participants, regardless of age. Breakfast was most commonly eaten at 7 am, with nearly 90% of participants reporting eating breakfast between 6 am and 8 am. One participant reported not eating breakfast at all. Lunch was eaten at the most consistent time; all but one participant ate lunch at noon or 1 pm. Dinner was eaten between 7 pm and 9 pm by all participants, with 8 pm being the most popular time.

The trend in meal duration was to eat a quick breakfast, a longer lunch, and an even slightly longer dinner. Most participants reported spending less than 15 minutes eating breakfast in the morning, although nearly half reported spending 15 to 30 minutes. Lunch was most commonly eaten in 15 to 30 minutes, although there was a range in responses from less than 15 minutes to 45-60 minutes. Over half of respondents spent 15 to 30 minutes eating dinner, but a significant percentage ate for 30 to 60 minutes.

### **TRANSPORTATION**

Walking and driving were the most popular modes of transportation to go to work or school (Table 2). Public transportation or bicycles were not commonly used. Participants in the “Other” category traveled by train and by motorbike. A few participants mentioned using multiple modes of transportation, and one older male

participant reported working from home. Participants under 25 years old almost exclusively reported walking.

**Table 2:** Typical Mode of Transportation.

	Physical Transportation		Motor Transportation		
	Walk	Bike	Bus	Car	Other Motor
Total	18	2	1	12	2
18-24	11	1	0	1	0
25-34	2	0	1	5	0
35-44	1	0	0	4	1
45+	4	1	0	2	1

Number of participants by mode of transportation may sum to more than the total number of participants because some participants reported multiple modes of transportation.

## HABITS AND BEHAVIORS

Tables 3a and 3b contain data on the responses to questions about habits and behaviors. Average reported frequencies of behaviors are given by age group and are calculated on a 1 to 6 scale, where 6 represents performing the behavior daily and 1 represents never performing the behavior.

Participants were divided about eating between meals. While nearly 20% reported snacking “almost everyday,” slightly over half claimed to snack only “sometimes” or “never.” Participants younger than 35 years of age were more likely to report eating between meals. One in four participants under the age of 35 reported snacking “almost everyday,” compared to one in twelve participants over 35 years old.

Skipping meals was uncommon. No participants reported skipping a meal because they were too busy more than once or twice a month; two-thirds of participants reported never skipping a meal. There was no difference between age groups.

**Table 3a:** Habits and Behaviors Frequency.

	Never	Some- times	1-2 Times per Month	1-2 Times per Week	Almost Everyday	Everyday
Eat Between Meals	4	12	0	9	6	0
Skip Meals	20	5	5	0	0	0
Eat Candy	10	15	2	4	0	0
Drink Wine	2	8	5	9	5	1
Eat Fast Food	14	5	8	3	0	0
Eat Prepackaged Foods	9	6	5	8	3	0
Use Vending Machines	10	13	5	2	0	1
Monitor Diet	2	6	0	3	13	7
Diet	14	15	0	0	2	0
Eat Alone	4	10	0	4	12	0
Smoke	18	4	0	1	2	6
Walk	0	7	2	6	10	6
Drive a Car	4	5	1	5	10	6
Go Grocery Shopping	0	4	5	13	2	7

**Table 3b:** Average Habits and Behaviors Frequency, by Age.

	18-24	25-34	35-44	45+
Eat Between Meals	3.6	3.4	2.5	2.5
Skip Meals	1.4	1.6	1.7	1.5
Eat Candy	2.6	2.0	2.0	1.2
Drink Wine	3.2	3.0	3.0	4.2
Eat Fast Food	2.7	2.0	1.8	1.2
Eat Prepackaged Foods	3.3	2.9	2.3	1.3
Use Vending Machines	2.4	2.3	2.2	1.2
Monitor Diet	4.2	4.8	3.3	5.2
Diet	1.8	2.0	1.5	1.5
Eat Alone	3.5	3.6	3.4	2.3
Smoke	2.4	3.0	1.7	2.8
Walk	5.3	3.4	4.2	3.5
Drive a Car	2.9	5.1	4.8	3.8
Go Grocery Shopping	4.0	4.3	3.7	4.7

(Note: Everyday = 6, Never = 1)

Only about 5% of participants reported never drinking wine, while half of participants claimed to drink at least once a week. However, only one participant reported

drinking wine daily. Wine consumption was more common in the 45 and older age category. The rates of wine consumption in this survey appear to be higher than the rates found in other studies. Possible explanations for this difference may be that Angers is in a wine-producing region of France, or that wine consumption may be greater in higher SES levels.

Approximately one-third of participants reported eating prepackaged foods at least once a week, although no one ate them every day. The average consumption of prepackaged food was inversely related to age. The 18-24 age group ate prepackaged foods a few times a month on average, the most frequent of any age group. Participants over 45 years of age ate prepackaged foods only “sometimes” on average.

Nearly half of participants reported never eating fast food. However, 10% reported eating at restaurants like McDonalds once or twice a week. Vending machine usage was limited. Three-quarters of participants almost never or never purchased items from vending machines. Similarly, 80% of participants reported almost never or never eating candy. Like prepackaged foods, younger age groups were increasingly more likely to report eating these items.

However, the question regarding vending machine usage was somewhat ambiguous. While the intent of this question was to get information about food consumed from vending machines, the wording of the question would have also included coffee vending machines. The responses are being used with the assumption that participants would have provided information on food vending machines only, or that coffee machine usage is minimal.

Dieting was rare among the participants. About half reported only sometimes dieting, and an additional 45% reported never dieting. While younger participants had slightly higher rates of reported dieting, the difference was not significant.

Although dieting was rarely reported, participants frequently monitored their diet. About two-thirds of participants said they pay attention to what they eat every day or almost every day. Monitoring food consumption appeared to be related to age, occurring more frequently in older age groups. However, the average frequency was significantly lower for the 35-44 year age group, likely due to a difference in the male:female ratio in the age groups. While the women in the age category mostly reported monitoring their diet almost everyday, the two men reported never or only sometimes paying attention to what they eat. Because men had a greater representation in this group than in the two younger groups, the statistics may not be comparable.

Participants were polarized in terms of eating alone. While about 45% reported eating alone only sometimes or never, close to the same percent reported eating alone almost every day. Age was inversely related to eating alone.

Participants frequently went grocery shopping. Nearly 30% of participants reported going grocery shopping every day or almost every day. Over 40% reported shopping once or twice per week. Differences between age groups are likely not significant.

Smoking was not frequent in the sampled population. Approximately 20% of the participants reported smoking daily, and 40% smoked at least “sometimes.”

Alternatively, over half reported never smoking at all. Smoking frequency was not related to age. Rates from the European Commission’s Eurobarometer survey in 1999 found that

slightly less than 40% of French 15 years and older smoked.<sup>21</sup> The study does specify how often an individual needed to smoke to be categorized as “smoking,” so a comparison is difficult to make. The rates of smoking may be similar, or they may be lower in the survey population and suggest better health behaviors and greater health knowledge.

Reported frequencies of walking and driving cars were nearly identical. In both questions, over half of participants reported frequencies of “every day” or “nearly every day;” between 20% and 30% of participants reported frequencies of “never” or “almost never.” However, there was a substantial difference between age groups.

Participants 18-24 years old were much more likely to walk; on average this age group walked almost every day. This age group was also the least likely to drive, with nearly one-third reporting to never drive a car. Conversely, the 25-34 age group was the least likely to walk and the most likely to drive. Most respondents in this group claimed to go for a walk less than once or twice a month. Over one-third reported driving daily, and no participant in this age group drove less than once per week.

## **FOOD SOURCES**

Tables 4a and 4b contain data from participants’ reports on the locations where they shopped for food. One question has been omitted from the analysis for being excessively vague. The question asked about the frequency with which a participant shopped at “a small shop near your home or apartment,” but the intent of the question was to discover how often they shopped at specific shops, such as boucheries and boulangeries.

In all age groups, supermarkets and shopping centers were the most popular location to obtain food. Three-quarters of participants reported shopping at these stores most often, and the shopping frequencies were consistent across age groups.

**Table 4a:** Food Source Frequency.

	Less Often				More Often
	1	2	3	4	5
Supermarkets	1	1	2	4	23
Street Market	9	7	9	3	3
Garden	25	4	1	1	0

**Table 4b:** Average Food Source Frequency, by Age

	18-24	25-34	35-44	45+
Supermarkets	3.4	3.8	3.2	3.7
Street Market	1.6	1.1	1.5	2.8
Garden	0.4	0.3	0.8	---

(Note: More Often = 5, Less Often = 1)

Street markets, or farmers markets, were the second most common location, although they were used significantly less frequently. Participants in the 45 and over age group shopped at street markets approximately twice as often as other age groups. While this may reflect a generational difference, it may also be that the location or times of operation are more convenient for older individuals.

Gardens were not a popular location to obtain food. The vast majority of participants chose the “least frequent” option on the questionnaire. No participants in the 45 years and older group responded to the question on gardens, which may be because they do not have gardens or do not use them for food. The usage frequencies among the other age groups were consistent, so this likely did not significantly affect averages, although the percentage of participants obtaining food from their gardens would be lower

than reflected in the statistics. Also, because no data on participants 45 and older are given, generalizing these results should be done with caution.

## WORKING MOTHERS

Because of the wide age distribution of participants, the question regarding the current employment of participants' mothers was disregarded. Many older participants declined to respond, likely because their mothers are elderly or deceased, and it was

**Table 5: Mothers Working when Participants were Children**

	Mother Worked	Mother Did Not Work
< 30 years old	13	2
> 30 years old	9	6

similarly unclear if the mothers of younger participants were of retirement age.

Therefore, only the question regarding the mother's employment during the participant's childhood was used. While this question does not describe the current number of mothers who work outside of the home, it does allow for comparisons between time periods in the past.

For the analysis of this question only, participants were divided into two groups: those 30 years of age and older, and those under 30 years of age. Because one participant declined to respond, this divided the responses evenly in half. Table 5 shows the breakdown of participant responses. Having a working mother during childhood was most common for younger participants. The older group reported that 60% of their mothers had worked when they were children, as compared to nearly 90% of the younger group.

A study in 2002 reported that half of French women worked,<sup>22</sup> a rate substantially lower than the rates found in this study. This discrepancy suggests differences between the survey questions or differences in the survey population and the general population of France, and also casts doubt on the accuracy of this data.

## **WORD ASSOCIATIONS**

Several participants declined to respond to the word association questions. Twenty-three participants responded to the question for “obesity,” and 25 participants responded to the question for “thinness.” Although participation rates were low, the questions are included in the analysis because the responses given were consistent.

The words most commonly associated with obesity were: ugly, lazy, unbearable, and nice. “Ugly” was chosen by 16 participants, or 70% of the responding participants. “Lazy” was chosen by 10 participants, or 43%. Seven participants, or 30%, chose “unbearable.” And “nice” was chosen by 5 participants, or 22%. The choice of this one positive word is in contrast to the other negative words chosen, and perhaps references a nurturing association with obesity, such as a grandmotherly-image.

The words most commonly associated with thinness were: attractive, athletic, active, and fashionable. “Attractive” and “athletic” were both chosen by 12 participants, or nearly half of respondents. “Active” was chosen by 14 participants, or 56%. And 17 participants, or 68%, chose “fashionable.” These words are opposite to “ugly” and “lazy,” associated with obesity.

In general, the words chosen identify physical and personality traits associated with weight status. It is interesting that words associated with intelligence, such as

“stupid” or “intelligent,” were not commonly chosen, nor were words associated with worth, such as “rich” or “hardworking.”

## PHYSICAL ACTIVITY

Responses about their physical activity were screened to count only regular exercise outside of physical activity related to daily functioning. Activities that were not accompanied by a performance frequency were assumed to be infrequent and not counted as regular exercise. Walking was considered transportation, unless specifically mentioned in the response as being supplemental exercise. It is possible that there was over-reporting of physical activity, similar to the issues of under-reporting of weight and food consumption, however the rates seem reasonable and in line with other research.

**Table 6:** Frequency and Duration of Regular Physical Exercise

	18-24	25-34	35-44	45+
Number of Participants	8	5	3	1
Average, All (hr/wk)	1.59	2.06	1.04	0.42
Average, Regular (hr/wk)	2.19	3.30	2.08	2.50

Table 6 shows the number of participants in each age category who practiced regular physical activity. It also shows the average hours per weeks spent in exercise for all participants and the average for only those participants who regularly exercised. Fifty-five percent, or just over half, of participants reported performing regular physical exercise outside of daily activities. Regular physical activity was related to age, significantly dropping after the age of forty. Nearly three-quarters of respondents under 40 years of age practiced some physical activity regularly, compared to only one of the nine participants over 40 years of age. The frequency of physical activity ranged from

less one hour per week to six hours per week. Participants that practiced regular physical activity did so at an average of 2.5 hours per week.

There was a wide variety in the activities practiced by participants. Water activities were most popular, such as swimming, diving, and sailing. About two-thirds of participants who performed regular physical activity reported performing at least one water activity. Typical activities, such as aerobics courses, jogging, and biking were listed, as were less typical activities, such as badminton and tai chi.

Of the 45% of participants who did not perform regular physical activity, most cited time constraints as a barrier to exercising. Fifty-seven percent of participants in this category mentioned lacking the time to exercise. Several of these participants mentioned specifically the loss of free time to child-raising, school, or other hobbies and interests. Other reasons barriers mentioned included a lack of motivation or a lack of a nearby facility. Also, some participants felt they did not need to exercise because they have adequate activity in their daily routine by walking to work or taking stairs instead of elevators. Because the majority of these participants were older adults, age-related health issues may also contribute to lower activity levels, although this was not mentioned by participants.

## **OPINION QUESTIONS**

Not surprisingly, there was a large variety in responses to the open-ended questions, both in breadth and content. However, there were common themes in the responses for each question.

### *Generational Diet Differences*

When discussing how they felt they ate differently than their parents or grandparents, participants comments could be grouped into six categories: having a healthier diet, having a less healthy diet, differences in the type of foods eaten, lifestyle changes influencing eating habits, social/political issues influencing eating habits, and having no change in diet between generations.

Seven participants (23%) judged that their diets were healthier than their parents or grandparents. Most of these comments described cooking techniques and dishes that involved ingredients lower in fat, such as not using butter or cream, or not eating meat or sauces. A couple of participants mentioned having more dietary variety because of greater food availability, particularly year-round produce.

On the contrary, eight participants (26%) judged that their diets were less healthy than that of their parents or grandparents. These participants primarily cited eating fewer fresh foods, particularly fruits and vegetables. Nearly all of these participants mentioned the foods that came from home gardens or family farms that were heavily used by previous generations, but from which the participants no longer obtain food. One participant voiced concern about the chemicals used in modern agriculture.

Thirteen participants (42%), mentioned specific foods they consumed that their parents and grandparents did not. Sugary snacks and fast food were called out, as were processed and prepackaged foods. Seventy-percent of the participants who made comments falling in this category referenced specifically the increased consumption of prepackaged foods and prepared meals. Several comments were also made about the

changes in meals, including eating traditional meals less frequently in favor of more exotic items or more simple meals.

Changes in lifestyle that influence their eating habits were mentioned by nine participants (29%). The most common lifestyle change mentioned was a decrease in free-time and a greater sense of rushing and stress, mentioned by eight participants. In particular, the pressures of being a working parent were mentioned. Other changes mentioned were increased snacking and less physical exertion required for daily activities.

Comments about lifestyle changes were typically accompanied by comments about changes in food consumption, as illustrated by one participant's response: "I eat fast food and prepared dishes because I work. My mother had the time to prepare balanced meals." Another participant wrote: "Now both parents work in the majority of families, so then there is the loss of time to cook, so then there is more prepared foods, fast food."

A couple of participants mentioned social, political, or economic changes that have influenced contemporary eating habits. One participant discussed the role of globalization, the modern desire for material goods, and a lack of information and education. Two other participants mentioned the role of World War II on the eating habits of their parents or grand-parents, perhaps by limiting their access to a wide variety of foods and by developing the habit of eating in moderation.

#### *Perceived Influences of Obesity Rates*

Participants were also asked for their own thoughts on the factors influencing the rise in obesity rates in France. The majority of responses to this question could also be

grouped into categories. By far, the most popular reasons were changes in the types of foods consumed and changes in lifestyle. Changes in meals, greater availability of foods, and influences on children were also common categories of responses.

Twenty-two participants (71%) asserted that the contemporary diet was unbalanced or that the types of foods commonly eaten were unhealthy. While a handful of participants mentioned inadequate fruit and vegetable consumption, the majority of comments focused on foods of low nutrient density, fast food, and prepackaged foods.

Thirteen participants (42%) discussed a reduced importance of the meal in daily routines. These types of comments included complaints that meals were no longer eaten at consistent times, or that not enough time was taken to eat a meal at a leisurely pace. Eleven participants mentioned eating snacking as a contributor to obesity.

The availability of food was listed by four participants (13%). They brought up issues such as vending machines and delivery food, which they believed make food more available, more tempting, and more likely to be eaten. One of these respondents said “You are more tempted by cookies, nuts, and things that you can snack on, and there is more access.”

Lifestyle changes were mentioned by twenty-four participants (77%). The majority of these participants mentioned the increasingly sedentary nature of modern life. They mentioned the reduction in activity during the daily routine as jobs move from fields to desks and as motor transportation becomes more common, and the increase of sedentary past-times, including television, video games, and computers. A significant number also mentioned the higher pace of modern life, and the corresponding stress and reduction in free-time. Most of them made the connection between less free-time, less

time to prepare proper meals, and a greater reliance on prepared meals. Two participants also proposed that the importation of the Western/American lifestyle was responsible for the changes in the French lifestyle.

Young people are a particular concern of the participants. Nine participants (29%) mentioned children or adolescents in their responses. Several of these comments contributed the changes in habits and lifestyle to children. In other words, when discussing cultural changes influencing obesity rates, the participants discussed them in terms of the behaviors of children. Other comments identified influences on children's behavior. Three participants mentioned the role of parents, arguing that parents are not adequately monitoring their children's behavior and consumption. Another participant mentioned the amount of advertising, largely for foods of low nutrient density, aimed at children.

In addition to comments that fall in these categories, four participants expressed concern that the public was not well enough educated about health and nutrition. Another participant blamed advertising in general for an increased consumption of foods, particularly for foods of low nutrient density.

## **CHAPTER IV: DISCUSSION OF RESEARCH QUESTIONS**

### **QUESTION 1: In France, how is culture traditionally connected to eating habits?**

Food is a valued component of French culture. Meals outline the daily schedule and are the center of family interactions. And French cuisine is recognized around the world because of the importance of high quality food to the French people. Meals are traditionally prepared from scratch with fresh ingredients, typically bought the same day. The traditional dishes are rich with sauces and cheese, and meals always include a dessert. However, these foods are eaten in moderation, in portions much smaller than typical American meals. Traditionally, meals are taken leisurely, so that the food can be savored rather than rushed. Also, food is only consumed during a meal; between-meal snacking has a very negative image in French culture.<sup>9, 28, 36</sup>

The cultural value and practice of dietary moderation is the relationship between the French and their food that allows them to savor rich dishes and remain healthy. The key to this cultural practice is the parental control over the diets of children. Children are raised to eat small portions and to not eat between meals, habits which they continue into their adulthood and pass on to their children. A break in this cultural chain between generations could change eating habits to the extent of raising obesity rates.

### **QUESTION 2: What cultural changes have occurred in France to influence its obesity rates?**

The majority of participants monitored their diet regularly, suggesting that the value of eating in moderation still exists in contemporary French culture. However, many other changes have occurred regarding the contemporary diet and lifestyle, including the

importance and form of meals, the sources of foods, the types of foods consumed, activity levels, and food advertisement and availability.

The form of the meal has changed. Meals are more commonly simplified from the traditional multi-course outline, the location and duration of meals are changing, eating between meals is more common, and the concepts of a healthy diet and a proper meal less clear.<sup>26, 36, 40</sup> Evidence in the literature and the survey suggest that meal durations are decreasing. Survey results strongly suggest that snacking is increasingly common.<sup>36</sup> Participants under 35 were three times more likely to report snacking “almost everyday” than participants over 35 years old, suggesting a cultural change in snacking habits.

The sources of food have changed as well. Supermarkets are increasingly popular, and home gardens are less common.<sup>9</sup> The survey data clearly shows that participants most frequently shopped at large supermarkets. A shift to larger supermarkets is likely related to a shift away from the use of fresh foods and a shift towards prepared and prepackaged foods. It may also be related to a shift away from frequent shopping trips. Approximately 70% of participants reported shopping twice per week or less, possibly showing a shift in behaviors, although there is no historical data to compare to. The low rates of obtaining food at street markets or home gardens also suggest that fresh ingredients may be less common in the contemporary diet. Participants particularly expressed concern in their open-ended responses about obtaining fewer fresh fruits, vegetables, and other products from home gardens and family farms, as their parents or grandparents did. Participants 45 years and older were more likely to shop at street markets, suggesting a cultural shift away from them among younger populations.

The foods that they eat have changed, such as a decrease in wine consumed, a shift in the types of meat consumed, a shift in the types of fats consumed, and a decrease in bread consumed.<sup>18, 40</sup> Fast food consumption is increasing.<sup>12, 15</sup> With its prominence in the media, it is not surprising that fast food was cited by over one-third of participants as a possible cause for increased rates of obesity in the second open-ended question. Prepackaged foods are also a concern to participants. Increased consumption of these items was mentioned by one-third of the participants in each of the open-ended questions. Responses to the question in the behavioral section reveal that one-third of participants reported eating prepared foods at least once a week, with a higher rate of consumption in by the younger participants. This data clearly suggests a shift towards these industrially-prepared foods.

Individuals are also more sedentary, as a result of technology has made the daily activities of life less physical, workers are commuting by motor transportation more frequently, and television and computers are increasing forms on entertainment.<sup>13, 22</sup> Older participants were particularly more sedentary; they were less likely to walk or exercise, and more likely to drive.

Food marketing has increased, particularly for foods of low nutrient density. Children are often the audience of these advertisements, concerning parents and health professionals.<sup>39</sup> Food is more available now, in vending machines, fast food restaurants, and prepackaged meals.<sup>23</sup> Processed foods are more common, and fast food restaurant chains are growing rapidly. The increase in food availability likely leads to consuming excess calories, particularly simple sugars and fat contained in processed foods, both during meals and in snacks.

**QUESTION 3: Why have these changes occurred?**

The pace of life in France has sped up in recent decades, reducing the amount of free time available to prepare and enjoy a meal, leading to irregular meal times and snacking. An increasing number of women entering the workforce has further reduced time for meal preparation. Busier parents also are less able to monitor their children's diets, allowing children greater freedom over their food choices and breaking down the parental control necessary to pass on the cultural practice of dietary moderation.<sup>40, 22</sup>

In the open-ended responses, many participants commented on a personal increase in consumption of prepared foods as a consequence of reduced free-time to prepare meals. Supermarkets are more convenient than shopping at individual shops or street markets, and the survey and literature agree that these types of stores are increasingly popular, likely due to time constraints.

Time constraints affect more than just food. The 25-34 age group was the least likely to walk and the most likely to drive, likely due to lifestyle factors, such as the need to transport children or commute longer distances to work. Contemporary lives are more sedentary, increasing the importance of exercise to maintain a healthy weight.<sup>7</sup> However, the most common barrier to exercising regularly mentioned by participants was lacking the time.

**QUESTION 4: What populations are most susceptible to these changes?**

While obesity rates are rising in all populations, some populations are more at risk than others. Adults and children in lower SES or education levels have higher rates of

obesity.<sup>2, 7, 31, 35</sup> Obesity is more frequent in women.<sup>1, 31</sup> And adults over the ages of 50 are most likely to be obese.<sup>19, 31</sup>

Individuals with more education are more likely to be knowledgeable about nutrition, and individuals in higher SES levels are not only able to afford higher-quality foods, but they can also afford health club memberships and other costs associated with mitigating susceptibility to obesity. Older adults may be influenced by a combined affect of a more rushed lifestyle related to their career and a lower metabolic rate related to increased age. Women are likely more influenced by other risk factors, because the affect of age and SES status is more pronounced in women.

This survey also highlighted differences in habits between the younger and older generations, which support the concept that cultural changes are influencing obesity rates in France. Younger participants were more likely to snack between meals; eat convenience foods, such as fast food, prepackaged foods, and items from vending machines; and to have a working mother when they were children. They were also less likely to drink wine or shop at street markets. Younger individuals may be more influenced by cultural changes increasing obesity rates. These changes in behavior may be mitigated by their higher rates of exercise and walking as transportation, keeping their obesity rates relatively low until they grow older.

**QUESTION 5: What are the French currently doing to reverse or counter-act these changes and encourage healthy eating?**

France's national government has taken immediate steps to reduce or reverse their rising obesity rates, particularly among children.<sup>17, 23, 24, 39</sup> The government has made reports, established objectives, and created an agency to oversee the obesity-related

actions. The government is also in the process of creating food labels, to better inform consumers. Laws have been passed to place a tax on foods of low nutrient density, to require food advertisers to pay for nutritional education programming, and to remove vending machines from schools. There is also a movement to train medical professionals to better screen and treat their obese patients. And to instill good habits in children, courses teaching nutrition and the traditional French diet are being taught in schools.

## **CHAPTER V: SUMMARY**

### **RELATIONSHIP TO THE LITERATURE**

In general, the questionnaire responses correspond to findings described in the literature. In the open-ended opinion questions, participants mentioned many of the same factors discussed in the literature and media, including shifts away from traditional meals of fresh ingredients; increased snacking and availability of food; increased consumption of foods of low nutrient density, fast food, and prepared meals; sedentary lifestyles related to increased use of motor transportation, reduced required activity for daily activities, and increased sedentary pastimes; increased stress and reduced free-time; and changing behaviors in children, perhaps due to a reduction in parental control.

Other data from the study also parallels information in the literature. For example, the time of meals corresponds to data in other studies.<sup>22</sup> Additionally, a participant commented that they spend more time on meals during the weekends, supporting a concept in the literature that traditional meals were more frequently being pushed to the weekends.<sup>36</sup> The survey data also clearly shows that participants most frequently shopped at large supermarkets.<sup>40</sup> This is consistent with information discussed in the literature review.

However, there were some differences between the survey data and information in the literature, including higher rates of wine consumption, lower rates of smoking, and higher rates of working mothers.<sup>22, 40</sup> In addition, participants' open-answer questions emphasized different lifestyle changes than the literature. Fast food was less prominent in participant responses, while prepared and prepackaged foods were more prominent.

Participants also focused more on the loss of the home gardens and family farms as a source of fresh and natural foods, rushed lifestyles influencing their eating and activity levels, and working parents not having the time to regularly exercise or prepare balanced meals from scratch.

## **PUBLIC HEALTH IMPLICATIONS**

### *Inconsistencies between Attitudes and Behaviors*

As a result of confusion about what is a proper meal or a healthy diet, there are inconsistencies between how contemporary French think or feel about food, and how they eat in reality. For example, while two-thirds of participants in a study claimed to have a diet based on traditional meals, only half of meals followed the tradition four-course arrangement.<sup>36</sup> There are also discrepancies between French attitudes and behavior about snacking – while most have highly negative associations with snacking, it is becoming increasingly commonplace.

Similarly, although fast food restaurants are successful in France, the French protest the chains. A strong social stigma of eating fast food was mentioned in the literature and supported in this survey.<sup>36</sup> While participants were concerned about the fast food consumption of others, relatively few of them reported eating it themselves. These inconsistencies show that while cultural changes regarding eating are occurring, the traditional mindset has remained. Or in other words, the public's behaviors have changed, but their attitudes have not.

*Intentional Shift away from Tradition*

While reviewing survey responses and the literature, it is apparent that not all of the cultural changes influencing eating habits are unintentional and not all participants saw recent changes in diet as a disadvantage. Some changes have occurred because of a specific motivation to do so. Interestingly, these intentional changes have been made because of a desire to make the diet healthier. Several participants mentioned improvements in their diets. These participants often cited eating less fat, meat, or sauces. Others mentioned eating smaller portions. And several participants commented on the enhanced variety in their diet, by eating dishes from other countries and having year-round availability of produce.

For example, simplified meals are a shift away from traditional eating habits, but many of the individuals simplifying their meals are doing so because they believe it is healthier. One survey participant exemplifies this attitude in her response to the first open-answer question: “I eat more simply, but also healthier. I don’t eat a first course, simply one main course and a dessert.” However, studies have found that these simplified meals lead to a decrease in fruit and vegetable consumption and an increase in snacking.

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Another example of shifts made with the intention of being healthier is the national effort to encourage breakfast cereal consumption rather than the traditional toast and jam.<sup>40</sup> This effort is back by the desire to increase whole grain consumption, particularly as processed food consumption increases. However, the message may be further confusing the concept of a healthy diet and undermining the traditional diet in other ways that are not healthier.

Many health professionals and social scientists believe that this discontinuation from the traditional diet – which was based on three square meals a day, moderate portions of satisfying food, and absolutely no snacking – is what is contributing to the recent rise in obesity rates. While the traditional diet may have room for improvement, receiving mixed messages will likely have an overall negative effect on the public's diet, because the general public may find it difficult to discriminate between changes from the traditional diet that are beneficial to health and those that are not.

#### *Sensitivity about Weight*

Several participants declined to respond to the word association questions. Some of these declining participants wrote notes on the survey commenting that they either did not understand the questions, did not have an association with any of the words listed, or did not feel that the questions were appropriate. That between 20-25% of participants did not feel comfortable responding to the questions suggests that weight is a highly sensitive issue in France.

#### *Government Role in Intervention*

Actions to counter influences on obesity rates are primarily governmental action. The national government established agencies and enacted laws with the intent of steering public behavior. The swift action of the national government shows that the citizens of France accept intervention by the government on factors relating to lifestyle. While some of these actions have been met with controversy or opposition, such as laws banning vending machines in schools or requiring food advertisers to contribute to nutritional education funds, food companies were the loudest voice in opposition. In

addition, the opposition was largely unsuccessful in completely stopping these regulations, indicating that they could not earn wide spread public support to counter the laws. And judging by popular media and survey results, the majority of public opinion supports the actions taken by the government.<sup>17, 23, 24, 39</sup>

The types of actions taken by the government further indicate that they are benefiting from the experiences of countries whose obesity rates began rising earlier, namely the United States. Vending machines in schools and taxation on foods of minimal nutritional value are approaches attempted by governing bodies in the United States, although with lesser wide-spread success. The national government has taken steps in countering cultural changes influencing obesity rates by encouraging healthy and traditional behaviors in youth, mainly through education.<sup>17, 23, 24, 39</sup>

A future action for the government is an analysis on the activity level of French citizens. Changes in workplace procedures, such as the use of computers and other technology, have reduced occupational physical activity. Other changes, such as increased car usage and decreased walking, are also reducing daily physical activity. Urban planning should be adjusted to recreate environments where walking can be the primary mode of transportation. A wide-spread national program to encourage exercise should also be undertaken, including the integration of workplace fitness centers and fostering exercise behaviors in children, and encouraging leisure-time behaviors that are more active than television-watching, such as gardening.

Changes in the types of foods consumed should also be addressed in future interventions. Public opinion is currently skeptical of fast food, but prepackaged foods are becoming increasingly popular, particularly with households without a stay-at-home

member. Current nutritional information should raise awareness to nutritional deficits in these foods. This information should also encourage the reintegration of fresh foods into the diet, to not only return to traditional diets, but to increase fruit, vegetable, and fiber consumption and reduce fat, salt, and added sugar consumption.

However, it is also important to bear in mind that while regulations and public campaigns can steer public behavior, it is the individual that ultimately makes the decision on what enters their mouth. The role of the government is to create an environment which makes a healthy choice an easy choice, not to decide for the individual. The effect of current and future interventions will only be as large as the changes in lifestyle that the French citizens are willing to make.

## **RECOMMENDATIONS FOR FURTHER RESEARCH**

The survey did not include questions on television, video game, or computer usage. As the literature and survey responses suggest, an increasingly sedentary lifestyle is a possible contributor to rising obesity rates, and those activities are an integral component of that sedentary lifestyle. In addition, there are few statistics on the amount of time French adults spend in these activities, particularly video games and computers, so the survey information would have supplemented the information available from secondary sources.

It would have also been beneficial to ask about the number of hours per week that the participants' mothers worked outside of the home. A 2002 study found that one-third of working French women were part-time workers, and women with children worked an average of 2.5 hours per day,<sup>22</sup> well under a full, eight-hour workday. When discussing

the effect of working mothers on family life, it would be meaningful to discuss the amount of time spent in employment. Older participants were less likely to have a mother that worked, but it would have been insightful to also compare the quantity of time spent in employment.

It would have also been insightful to ask participants who regularly exercised why they chose to do so. Only participants who did not exercise were asked about their motivation, but it would have been interesting to also study the motivations for exercising.

Also, the word list for the word association questions included no words describing health status, such as “healthy,” “unhealthy,” “normal,” or “sick.” This removed the opportunity for participants to express a range of feelings associated with “obesity” and “thinness” that would have been particularly applicable to the desired outcomes of the survey. If the survey were to be repeated, a wider variety of words would be listed for those questions.

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**APPENDIX**

Questionnaire in  
Original French Version and  
Translated English Version

## Questionnaire

Votre âge : \_\_\_\_\_

Votre sexe : \_\_\_ Homme \_\_\_ Femme

### Typiquement, à quelle heure prenez-vous vos repas ?

*(entourez une réponse pour chaque repas)*

Petit Déjeuner	plus tôt	6h	7h	8h	9h	10h	11h	12h	13h	plus tard
Déjeuner	plus tôt	10h	11h	12h	13h	14h	15h	16h	17h	plus tard
Dîner	plus tôt	15h	16h	17h	18h	19h	20h	21h	22h	plus tard

### Combien de temps dure typiquement de vos repas ?

Petit Déjeuner	___ < 15 mins	___ 15-30 mins	___ 30-45 mins	___ 45-60 mins	___ > un heure
Déjeuner	___ < 15 mins	___ 15-30 mins	___ 30-45 mins	___ 45-60 mins	___ > un heure
Dîner	___ < 15 mins	___ 15-30 mins	___ 30-45 mins	___ 45-60 mins	___ > un heure

### Typiquement, comment allez-vous à l'université ou au travail ?

\_\_\_ à pied      \_\_\_ à vélo      \_\_\_ en bus      \_\_\_ en voiture      \_\_\_ autre: \_\_\_\_\_

<b>Combien de fois est-ce vous:</b>	<i>jamais</i>	<i>parfois</i>	<i>1-2 fois par mois</i>	<i>1-2 fois par semaine</i>	<i>presque toujours</i>	<i>toujours</i>
Mangez entre les repas						
Ne mangez pas un repas parce que vous êtes trop occupé						
Mangez des bonbons						
Buvez du vin						
Mangez des aliments de préparation rapide, comme McDonald's						
Mangez du nourriture tout prêt (qu'on achète en boîte, par exemple) ou « en sauce »						
Achetez quelque chose d'un distributeur automatique						
Faire attention à ce que vous mangez						
Êtes au régime						
Seul(e) à manger						
Fumez						
Faire un promenade ou allez à pied						
Conduisez une voiture						
Faites vos courses						

<b>Où achetez-vous (ou obtenez-vous) votre nourriture ?</b>	<i>souvent</i>			<i>peu souvent</i>	
Au marché de la rue	1	2	3	4	5
Dans un petite marché près de votre maison ou appartement	1	2	3	4	5
Dans un supermarché ou un hypermarché	1	2	3	4	5
Votre propre jardin	1	2	3	4	5

**Est-ce que votre mère travaille ?** \_\_\_ Oui \_\_\_ Non

**Est-ce qu'elle a travaillé quand vous étiez un(e) enfant ?** \_\_\_ Oui \_\_\_ Non

**Quels mots associez-vous à « obésité » ?** (*entourez tous ceux qui s'appliquent*)

gentil	insupportable	intelligent	stupide	riche	à la mode
attrayant	laid	assidu	actif	sportif	paresseux

**Quels mots associez-vous à « mince » ?** (*entourez tous ceux qui s'appliquent*)

gentil	insupportable	intelligent	stupide	riche	à la mode
attrayant	laid	assidu	actif	sportif	paresseux

**Est-ce que vous pratiquez un sport ou des activités sportives ?**

Si oui, quel sports ou activités et combien d'heures par semaine ?

Si non, pourquoi pas ?

**À votre avis, pensez-vous que vous mangez différemment que vos parents ou vos grands-parents quand ils avaient votre âge ? Comment et pourquoi ?**

**À votre avis, pourquoi est-ce que le taux d'obésité en France a augmenté ?**

*Merci pour vos réponses*

## Questionnaire

Age: \_\_\_\_\_

Gender: \_\_\_ Male \_\_\_ Female

### What time do you typically eat your meals?

*(circle one response for each meal)*

Breakfast	earlier	6h	7h	8h	9h	10h	11h	12h	13h	later
Lunch	earlier	10h	11h	12h	13h	14h	15h	16h	17h	later
Dinner	earlier	15h	16h	17h	18h	19h	20h	21h	22h	later

### How much time do you usually spend eating your meals?

Breakfast	___ < 15 mins.	___ 15-30 mins	___ 30-45 mins	___ 45-60 mins	___ > one hour
Lunch	___ < 15 mins.	___ 15-30 mins	___ 30-45 mins	___ 45-60 mins	___ > one hour
Dinner	___ < 15 mins.	___ 15-30 mins	___ 30-45 mins	___ 45-60 mins	___ > one hour

### How do you typically come to your school or work?

\_\_\_ by foot    \_\_\_ by bike    \_\_\_ by bus    \_\_\_ by car    \_\_\_ other: \_\_\_\_\_

How often do you:	<i>never</i>	<i>rarely</i>	<i>1-2 times a month</i>	<i>1-2 times a week</i>	<i>almost every- day</i>	<i>every- day</i>
Eat between meals						
Skip a meal because you are too busy						
Eat candy						
Eat fast food, like McDonalds						
Eat pre-packaged foods (that come in a box, for example)						
Buy something from a vending machine						
Pay attention to what you eat						
Diet						
Eat alone						
Smoke						
Take a walk or go somewhere on foot						
Drive a car						
Go grocery shopping						

**Where to you buy (or get) your food?**

	<i>more frequently</i>		<i>less frequently</i>		
At a farmers market or street market	1	2	3	4	5
At a small market near your home	1	2	3	4	5
At large superstore	1	2	3	4	5
Your own garden	1	2	3	4	5

**Does your mother work?** \_\_\_ Yes \_\_\_ No

**Did she work when you were a child?** \_\_\_ Yes \_\_\_ No

**Which words do you associate with “obesity”? (circle all that apply)**

nice            mean            intelligent    stupid            rich            fashionable  
attractive      ugly              hardworking    active            athletic        lazy

**Which words do you associate with “thin”? (circle all that apply)**

nice            mean            intelligent    stupid            rich            fashionable  
attractive      ugly              hardworking    active            athletic        lazy

**Do you practice any sports or physical activities?**

If yes, which sports and how many hours per week?

If no, why not?

**In your opinion, do you eat differently than your parents or grandparents did when they were your age? How and why?**

**In your opinion, why is the rate of obesity rising in France?**

*Thank you for your responses*