Behind the Scenes of Calcium

An investigation that looks further into what most consumers overlook in terms of the source of the actual calcium, and determining different derivations of calcium

Tag Words: Calcium, Citracal, calcium carbonate, naturally-derived calcium

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Summary

In today’s society, concerns of healthy food choices are increasing as each day passes by. Nutrient deficiencies are being treated with dietary supplements. These are regarded as generally safe choices, although consumers do not really know how dietary supplements are processed. For the purpose of our paper we decided to investigate further on one of the more popular supplements, calcium. (TY)

Video Link: http://www.youtube.com/watch?v=yDASSTw2w4g&list=UUts4_1WyqXMMVDfu9ZffstA&feature=plcp (CS)

Introduction

To help this day by day issue is through the ingestion of calcium. In order to help fulfill an individual’s calcium deficiency, purchasing an over-the-counter calcium supplement at any local pharmacy can satisfy one’s needs. With the research and investigations, we discovered that calcium carbonate is a common active ingredient in most calcium supplements along with another active ingredient, Vitamin D.

Below is a table compiled with information that can be found on each product’s ingredient label. However, it was difficult to find exactly where the calcium from each product came from. This misconception is what we tried to help consumers understand in terms of country origin of labeling. (TY)

Table 1: Ingredients found on labels of over-the-counter products

<table>
<thead>
<tr>
<th>Product (Company)</th>
<th>Active Ingredient</th>
<th>Inactive Ingredient</th>
<th>Other Information (distributor,</th>
<th>Where does the calcium come from</th>
</tr>
</thead>
</table>

Information Found on Labels
<table>
<thead>
<tr>
<th>Name (manufacturer)</th>
<th>(amount)</th>
<th>manufacturer, marketed) &amp; purification methods?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citracal (Bayer)</td>
<td>-Calcium Citrate (500mg) -Vitamin D (400IU)</td>
<td>Distributed: Morristown, NJ ?</td>
</tr>
<tr>
<td>Calcium (Live Better)</td>
<td>-Calcium Carbonate (600mg)</td>
<td>Distributed: Montvale, NJ ?</td>
</tr>
<tr>
<td>Caltrate (Wyeth)</td>
<td>-Calcium Carbonate (600mg)</td>
<td>Marketed: Madison, NJ ?</td>
</tr>
<tr>
<td>Viactiv- Calcium plus D (McNeil)</td>
<td>-Vitamin D (400IU) -Vitamin K (40 mcg) -Calcium Carbonate (500mg)</td>
<td>Distributed: Washington, PA ?</td>
</tr>
<tr>
<td>Calcium plus Vitamin D3 (Sundown Naturals)</td>
<td>-Vitamin D3 (250 IU) -Calcium Carbonate (1200mg)</td>
<td>Manufactured: Boca Raton, FL ?</td>
</tr>
<tr>
<td>Calcium with Vitamin D (Nature Made)</td>
<td>-Vitamin D3 (200 IU) -Calcium Carbonate</td>
<td>Distributed: Mission Hills, ?</td>
</tr>
</tbody>
</table>
### Country of Origin for Calcium

(CS) With hundreds of calcium supplements available on the market, it can be a mountain of information to understand about which brands are the best and most effective for you. What are the proper levels of calcium that I should be taking? Are calcium supplements safe to use? Should my children be taking calcium supplements? These are common questions and concerns people have regarding calcium supplement use. But there has been a question escaping our minds that needs to be brought into the light: Where is our calcium coming from? In an ever growing global economy, it is seldom that we stop to think about how and where we are getting our products from.
According to GlaxoSmithKline, fewer than 25 percent of adult Americans meet the currently recommended calcium intake (Calcium Intake, GlaxoSmithKline). Males and females aged 19-50 years are recommended to take 1,000mg per day of calcium (Calcium Intake, GlaxoSmithKline). Males and females aged 51-70 years are recommended to take 1,200mg per day of calcium (Calcium Intake, GlaxoSmithKline). With the addition of calcium supplements and calcium fortified products on the market, it can be very confusing to choose which product is best for you. But the source of the calcium in calcium supplements is just as important as where a piece of fruit or other food source that requires a country of origin food label, under the Country of Origin Labeling law (COOL), is from.


United States Food and Drug Administration

The United States Food and Drug Administration (FDA) have made many changes to help with the safety of Americans with ever changing times. The labeling on our everyday foods, drugs, and cosmetics help United States citizens understand what they are using/eating, the ingredients inside of the product, and some of the safety concerns they should have. However, labeling on a box of cereal is much different than a label you might see on a bottle of Bayer Aspirin or on a piece of fruit. The box of cereal may have just the nutrition facts and the ingredients, but a drug product in the United States must pass through rigorous review, including specific word usage, where words are placed, the size and color of the font, and much more. Labeling on many U.S. drugs and foods do not contain where the food/active ingredients come from. Why is it that one can pick up a banana at the supermarket and see on a sticker that it is a product of Columbia, but looking at a supplement bottle from a drug store will not reveal the same results? The fact that labeling on drugs in the United States is so much more regulated then other food products shows how important of a safety concern drugs are in the U.S., and how much of a potential harm they can cause to the public. I propose that drug labels should include the source of its active ingredients for the safety of the public and for the prevention of toxic disease outbreaks. United States citizens reserve the right to know where the active ingredients of drugs are coming from. This means both the region of the world and what it was extracted from. This information needs to be readily available for both consumers and federal officials for three main reasons. The drug industry in the United States has not been overseen by the FDA properly and is evident in many studies and recalls across the country showing contamination in drug products. Contamination in drug products can be a precursor to disease outbreaks causing nation-wide health problems. If products from a specific region have been contaminated across the globe, it would be easier to stop the outbreak by informing the public of this regions contamination and to stay away from drugs with active ingredients from that region than if the active ingredients source were not on the label. Second, it is the right of American citizens to know where the active ingredients are from. For example, a vegan individual has the right to know whether or not an active ingredient is extracted from an animal. The third reason why it is important to know where the active ingredients for a drug product are from is because this influences the consumer’s choice. On many clothing products made in the United States, you can find a big “MADE IN USA” with an American flag next to it. Most people in the U.S. are more inclined to buy products from the U.S., and therefore, this could lead to a boost in the downward economy.
The FDA has not had the oversight that is necessary for the public’s safety. There are more and more products being passed by the FDA every day, and the size of the FDA may not be equipped to keep proper surveillance on the millions of marketed products.

Table 2: FDA Recalls from 2006 to 2009 (CNN.com)

Drug recalls surge

<table>
<thead>
<tr>
<th>Year</th>
<th>SKYROCKETING DRUG RECALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>384</td>
</tr>
<tr>
<td>2007</td>
<td>391</td>
</tr>
<tr>
<td>2008</td>
<td>426</td>
</tr>
<tr>
<td>2009</td>
<td>1,742</td>
</tr>
</tbody>
</table>

One specific case of a recall due to a product with an active ingredient contaminated from a separate country is the Johnson and Johnson recall of Tylenol. On September 30, the FDA came out with the official interpretation of how the Tylenol had been contaminated, and the effects of the contaminated products on the U.S. “The FDA became aware that McNeil had received reports of products from its Las Piedras facility having a musty, moldy odor…the firm identified the cause of the odor to be a chemical, called 2, 4, 6-Tribromoanisole or TBA, a pesticide used to treat wooden pallets.”(US Food and Drug Administration) This recall included many different Tylenol products, with no exception to children’s Tylenol. It is unsure what impact it may have had on the recall if the drug products had its country of origin on the label. Although, having the country of origin on the label would allow Americans to stay away from other possible drugs from this same region that may have the same contamination that the FDA had not had time to look further into. There are many more cases such as these that prove the importance of the country of origin on the label, including cases of mad cow disease in 2003 related to meat from Canada. (Country of Origin Labeling for Food) People argued that if they had known where the meat was coming from, they could have stayed away from the Canadian meat products. (Country of Origin Labeling for Food) Looking at these examples can help show the lack of FDA oversight on drugs as a whole, and how country of origin labeling can help reduce disease outbreaks.

FDA and Country of Origin Labeling

Proponents of country of origin labeling argue that it is the consumers right to know where the food is coming from. If someone chooses to be vegan, then they reserve the right to not eat products from animals. With drugs today however, vegans cannot tell where the ingredients are coming from, and in turn have to make an uninformed decision. The vegan population has been increasing over the past few years. A website called the Vegan Society has made an effort to make ingredients of drugs known. From this site, you can redirect to another website that allows you to check ingredients from drug products licensed in the United Kingdom. Although this is not all products licensed in the US, it does provide vegans some outlet for ingredients in drug products that are consumed globally. But why is the vegan community forced with this difficult task of providing information that should be available to all US consumers? The FDA has the information on where ingredients are from because it is necessary information for them to collect during the drug approval process. Keeping this information hidden from the public has no added value and only hinders on our basic American rights.

In an article titled “Americans’ Choice of Domestic over Foreign Products: A Matter of Helping Behavior”, Kent L. Granzin and Janeen E. Olsen discuss behaviors of Americans and whether our behaviors favor buying domestic products over foreign products. More specifically, they discuss the idea that Americans will buy domestic products over foreign products in order to, at least partly the reason, save their fellow citizens jobs. (Journal of Business Research) After taking in factors such as patriotism, social concern, costs, and similarity, they concluded that having a product produced domestically does influence the buyer into purchasing it. The results also help explain “Buy American” campaigns and how they could benefit from social categorization. This shows that placing the country of origin on the labels will influence the buyers decision on which product he or she will buy, and also that they will favor American made goods. The origin of the food product on a label is something that has been discussed and implemented in the past. “Country of Origin Labeling (COOL) is a labeling law that requires retailers, such as full-line grocery stores, supermarkets, and club warehouse stores, notify their customers with information regarding the source of certain foods. Food products, (covered commodities) contained in the law include muscle cut and ground meats: beef, veal, pork, lamb, goat, and chicken; wild and farm-raised fish and shellfish; fresh and frozen fruits and vegetables; peanuts, pecans, and macadamia nuts; and ginseng.” (USDA) Since drug products can reach as high or higher population amounts than these food products, it should be just as important, if not more important, to understand where the active ingredients are coming from. “Regulations for fish and shellfish covered commodities (7 CFR Part 60) became effective in 2005.”(USDA) The fact that this regulation became effective after the previous one shows a trend in adding new products to include this type of information on the label of the food we consume. The Agricultural Marketing Service (AMS) oversees the enforcement of COOL, and has had success.
Calcium Purification

After looking at the table on what information can be found on a label, we can see that there is an obvious gap of information that we could not find on the label itself. Purification methods for calcium are not made available on the label. At first we believed that perhaps it was not included because the process was too complex to fit on one small label. However, our individual research was met with a wall which prevented us from finding an answer to the question of how calcium is purified in order to be converted into supplements. After searching on databases, simple Google searches and even asking companies directly we came to the realization that we were not going to be able to find a direct answer to our question. On the other hand, our effort was not all wasted as we can bring awareness to the importance of this information. The sources of calcium are too vast and plentiful to not have this knowledge at our disposal.

Naturally Derived Calcium

As mentioned above, the origin of calcium can have a major impact on how consumers buy products. Country of origin, as far as manufacturing is concerned, is not the only influential factor when it comes to shopping for calcium supplements. We live in a health conscious society in which synthetically made products may take a back seat to natural products which are generally believed to be healthier. The three main different types of calcium used today in supplement pills are naturally-derived calcium, refined calcium carbonate, and chelated calcium (Chelated calcium supplements, AdvaCAL). Naturally-derived calcium appears in dietary supplements as bone meal, oyster shell, limestone, and dolomite. Usually when we hear of a natural product, we may assume that it is safer because it does come from nature but unfortunately that is not the case in this situation. Often times we neglect the negative side effects of something that is generally thought of as being a good thing. The old saying that too much of a good thing is actually a bad thing might prove to be true in this case. The verdict is still out on where exactly these sources of calcium come from or how they are made.

The issue that we are trying to get across is the lack of important information that is being withheld from the consumer. Most of the information is being kept confidential and if some insight is given, it is mostly general information. Erie Foods International, Inc. is a company that provides custom processing services for the food industry. The company has a Frequently Asked Questions section on their website, eriefoods.com, about Calcium Carbonate/Oyster Shells. Some of the information is very vague and it merely states that Oyster shell calcium comes from “fossilized sources”. Something that should be information available to all consumers is how
exactly is the calcium that people will soon ingest purified? The company merely goes on to say that there is a “triple sanitation process” used.

Bone meal is another form of naturally derived calcium that is just as blurry when it comes to its sanitation or purification process. Bone meal is essentially a mix of bones that have been ground up thoroughly. Bone meal was once an alternative source for humans to get their calcium supplementation but it really is not all that viable anymore. There are better, as far as absorbability of the calcium by your body, and safer forms of calcium supplements out there. For the most part, the calcium supplementation from bone meal that I found online was for pets. Perhaps the reason for this was that it was discovered that bone meal was the vector for the Bovine spongiform encephalopathy (BSE) also known as mad cow disease. The disease spread by feeding cattle contaminated meat and bone meal that was made up by grinding up the remains of other cattle (Coghlan 16). The first case was detected in the UK in the 1990s but this was a practice that was done all over the world and the UK was simply the unlucky one in being the first to report cases. What probably caused people to go away from bone meal as a source of calcium was that in 1996 conclusive scientific evidence showed that BSE caused a form of mad cow disease in humans called Creutzfeldt-Jakob disease (Coghlan 16). Although bone meal has become unpopular amongst the masses as a source of calcium supplementation, it is not the most unpopular.

Probably the least popular form of naturally derived calcium is dolomite. Dolomite is a mineral that is made up of calcium and magnesium carbonate but the purification process for it is not really clear. This made it as an alternative source of supplementation for calcium and magnesium deficiencies in the eyes of the people. However, dolomite was found to contain substantial amounts of lead, mercury, arsenic and other heavy metals. Bourgoin et al. write that “none of the products within the dolomite and bone meal categories…could meet the recommended daily allowance of calcium for young children while supplying a lead dose of 1 microgram or less” (1158). As a result, this form of supplementation is unsafe for children because they have less resistance to lead, and absorb it more readily than adults do (Bourgoin et al. 1158). Just as with the bone meal calcium, much safer and efficient source of supplementation for calcium and magnesium exist nowadays.


**Toxicity of Naturally Derived Calcium**
It is very important that if we take calcium supplements we know the source of which they come from. Calcium suppliers do not make too much information available to the consumer. The National Institute of Arthritis and Musculoskeletal and Skin Diseases mention that dangerous side effects may not only come from the calcium itself, but may also come as a result of “impure” calcium. Information posted on their webpage says that calcium only exists in nature in the form of compounds, such as, calcium carbonate, calcium phosphate, and calcium citrate. The Osteoporosis and Related Bone Diseases National Resource Center concurs with Bourgoin et al. in mentioning that supplements which come from oyster shells or dolomite may contain high levels of lead and other metals which are toxic to our bodies.

As years passed and the threat of excess levels of lead in calcium supplements increased, countless studies have been done to analyze just how much lead is found in the more common calcium supplements. The results have been pretty much consistent in showing that the calcium obtained from natural sources contains a higher level of lead than those obtained by artificial means. The unpublished research done by Scelfo and Flegal, at the University of California in Santa Cruz, mentions that just because the calcium contains high levels of lead, it does not mean that all the lead will be absorbed by our system. The authors point out that the structural similarity between lead and calcium causes lead absorption to be inhibited by the presence of calcium. A different study described by Collins and Summa found that when subjects were given 1 g of calcium carbonate along with 200-300 mcg of lead, the average absorption of lead was 1.85% of the original lead. That means that out of the 200-300 mcg that were ingested only about 2 mcg were absorbed out of the ingested total (Collins and Summa 157). The article mentions that these levels are not really toxic or dangerous. On the other hand, the opinion of interested groups for the most part is that even if these levels are not particularly toxic, when we combine these with the lead we already intake on a daily basis from unknown sources, it can become dangerous.

The Massachusetts College of Pharmacy and Allied Health Sciences also provided a warning against lead contents of calcium that comes from natural resources such as oyster shells, bone meal and dolomite. The reason that these forms of calcium may contain higher levels of lead is because lead and calcium are structurally similar and as a result can be found near each other in nature (Collins and Summa 156). According to data from the National Research Council, pregnant women and adolescents need more calcium than any other group. Lead poisoning is particularly dangerous for pregnant women for 2 reasons. In our system lead is stored along with calcium in our teeth and bones until our body undergoes a physiological stress that causes it to be released. As a result, when a woman becomes pregnant, this physiological stress causes the stored lead to be released into the systemic circulation (Collins and Summa 156). Lead becomes more dangerous when it can be absorbed easily into our system. We may believe that a growing person needs the extra calcium so that they can grow big and strong but what is not really known by the average person is that the younger that a person is, the easier they absorb lead (Collins and Summa 157). The FDA has determined that negative effects can be seen when the lead concentration in blood reaches a level of 10 micrograms/Deciliter and higher. While the lead we may get from calcium supplements does not surpass or come all that close to the limit prescribed by the FDA there are many other factors that we must take into consideration. For instance, the lead that gets absorbed into our body does not only come from calcium supplements. Lead is everywhere; it is in the air we breathe, the water we drink, etc. When we add up all of these
small quantities of lead, they become bigger and it gets closer to that prescribed limit by the FDA.

A recurring theme about these sources of naturally derived calcium is the concern for significant amounts of lead. As the years have passed and as technology has progressed, the levels of lead have decreased. The regulations have gotten stricter but as long as lead is still present, the health risk is there. The ancient marine calcareous deposits that are mined for calcium supplements inevitably contain some lead (Heaney 1). It is for these health risks that are found in naturally derived calcium that purifications should be made available to consumers. Labels really lack essential information that could affect people’s health. Until the FDA really steps up and makes it a requirement for calcium suppliers to make this information available to consumers, we must explore safer options. You can get calcium supplements that include vitamin D in them, this increases the absorbability of calcium, and the absorbability of calcium inhibits the absorbability of lead. I believe that although he thought of natural products may seem alluring, in this case one is better off staying away from naturally derived products and opt for refined calcium carbonate and chelated calcium if you really need to consume calcium supplements. Without a doubt, however, the safest option for getting ones daily calcium is your normal everyday diet.


Results

It is a bit disappointing that we were not able to find out all the pieces of information that we had originally set out to discover, but we feel that our research was a success in a number of ways. I think this paper highlights the lack of information that is available to the people who matter most in this business, and every other for that matter, the consumers. Not only is this information not available, but the major calcium suppliers are not willing to give it out. Our e-mail compliance and phone compliance areas demonstrate how the calcium companies dodge direct questions as to the origins of their product. This may not be their entire fault, as blame should be shared with the FDA. The FDA’s responsibility is to protect the health of every person in this country. If the FDA made it mandatory for all calcium supplements to be labeled according to country of origin, the calcium suppliers would have no choice but to comply. Through this paper we feel that we have made the consumer aware of the issues that underlie the lack of labeling on a calcium supplements. There are various calcium sources that go unnoticed and it is not a demand that supplements be labeled, it is a right. As mentioned, the FDA continues to add new foods and drugs to the labeling law. Whether or not dietary supplements are considered medicine, they really should not be exempt from stricter labeling laws because every day more and more people add supplements as a source of dietary nutrition.
Part 2: Service Project

(TY) Our service project was to allow users of consumers of calcium supplements to be aware of the possible issues that may arise or be overlooked. We wanted to make sure that these individuals were educated. We had originally approached this issue as something our professor had questioned us about, so we figured it would be in our best interest to help teach her and other consumers with the same mentality about the specifics on calcium products. Reaching out to major pharmaceutical companies through e-mails or phone calls was our main approach because we decided it would be best to hear information from a pharmaceutical company’s representative than to go from link to link finding the information. As this approach along with a bit of literary research we were able to help find our answers for naturally derived calcium and labeling laws through the FDA. Another approach we had taken was calling local pharmacies and asked questions regarding origin of production and what form of calcium the drug is actually created from. CVS pharmacy was most helpful because they informed us on sites we may be interested in using (www.medscape.com) and they helped product searching on medicine’s they carry in the store.

This is what we found through our phone and e-mail compliance.

Investigation

Although it had been a grueling process, we were able to get in touch with large and small companies, along with the use of articles to help us support our investigation and topic of calcium.

E-mail Compliance

Our approach to get in contact with major pharmaceutical companies was important because we were reaching out to the sources that had information on the exact answers we needed. We emailed a number of major pharmaceutical companies: Johnson & Johnson, Bristol-Myers Squibb, Bayer, Pfizer, and Eli & Lilly. These e-mails were sent as soon as possible because we knew that it would take a while to hear back from these companies. The e-mail sent informed the company our purpose and our final mission to help inform the public. We sent a variation to the one below:

“To Whom It May Concern,

We are currently writing to you and your company because we are interested in your products that contain calcium. Our group is interested in calcium, because that seems to be the leading vitamin supplement that most individuals will be required to consume in the near future. We are hoping that you will help us understand a few things about your product so we can help further educate the public the positive correlation in calcium to longevity.
Since medicine is our future we ask for your help for such information. We appreciate your time in reading our letter. We look forward hearing from you in the near future.”

Bayer HealthCare had helped to follow-up on one our e-mails that we sent out. They helped us as investigators to understand their production of their over the counter product, Citracal. We further researched and found that Citracal is advertised as a product that is “#1 Doctor and Ob/Gyn Recommended.” However, we have provided the actual e-mail response from Bayer HealthCare (below) and their information is useful because they mention that the other ingredients used are manufactures in China, with precise testing before they reach the finished product. It is important that they emphasized their extensive testing on their ingredients to ensure a well-produced product on the market.

“The type of calcium used in most of our Citracal products is calcium citrate. Calcium citrate is made from high purity limestone (calcium carbonate) and citric acid.

Citracal is manufactured at Mission Pharmacal in San Antonio, Texas.

The ingredients used in the manufacture of our global product portfolio are sourced from all over the world including China. Please be assured that all ingredients are quality tested prior to use in manufacturing and additional rigorous quality assurance tests are conducted on all our finished products. All of these ingredients, both active and inactive, are of the highest quality and meet our own rigorous internal, as well as industry safety standards with regard to strength, purity, and quality for medicines and dietary supplements that are used today in more than 130 countries around the world.

Thank you for taking the time to contact Bayer HealthCare. I was pleased to hear that you are doing a special project with our Citracal - Unknown Formula.”

As these e-mails were sent, one company, Johnson & Johnson, replied back with a response that did not provide much information on their product, but instead they redirected us to their toll-free number where a representative would be able to better assist us on our questions regarding their product.

“Thank you for contacting the Johnson & Johnson Consumer Companies, Inc. Information Center. It is always important to hear from our consumers, and we appreciate the time you have taken to contact us.
We would like to answer your question in this e-mail; however, in this case, we would be better able to help you over the phone.

Again, thank you for your interest in our company. Should you have any comments or questions in the future, please contact us via our website www.johnsonsbaby.com or by calling our toll-free number, 1-866-565-2229. Our specialists are available Monday through Friday, 8:00 a.m. - 8:00 p.m. EST and will be happy to assist you.”

Similar situations had happened with Pfizer and Bristol-Myers Squibb. However, we did not hear back from Eli & Lilly.

**Phone Compliance**

Before calling companies we made sure to narrow our search and focused on specific companies that we felt we would get the most information we needed to help our research on calcium supplements. Prior to dialing these companies we were required to compile and gather all the numbers that led us to the actual companies’ medical information department. Although hard to believe, it was difficult to find the numbers to some companies because some major companies are in different countries and other companies directed their consumers to writing an e-mail instead of being distributed their company number.

We first began our search by calling CVS Pharmacy in East Brunswick and Plainsboro. East Brunswick had helped with providing information that we could look further into a site called Medscape (www.medscape.com) for further information on our concerns regarding calcium supplements being distributed to their customers. Medscape helped with news, perspectives, and full-text journal articles that are medically accredited.

Next we called, Plainsboro who was able to give us information on the products they carry and distribute in their store. We spoke to one pharmacist who was able to inform us that the products they sell to customers are only produced in the United States of America and that they had no recollection of the sources being from outside the United States of America. After being on hold, we later spoke to another pharmacist who was able to inform us about the specific products they have at their store. In general the three products were all made in New York and distributed from Pennsylvania or Florida. We look further by asking what type of calcium each product contained, calcium carbonate or calcium citrate. Caltrate is made from calcium carbonate, Citracal is made from calcium citrate, and Oscal is made from calcium carbonate (shellfish).

We look further into Caltrate by calling the company Pfizer. We asked if the representative knew if Pfizer bought their calcium from a different source outside the country and the response we got was it was not their knowledge that it was the case. Caltrate is marketed in New Jersey, with calcium carbonate (no shellfish) as mentioned from the Plainsboro Pharmacist. We also got more information on another Pfizer product called Centrum, a daily multi-vitamin sold over the counter. We looked further into the product Centrum, it is made in the United States of America,
no specific location was given about its production, however we were also able obtain that the calcium in the multi-vitamins are calcium carbonate (no shellfish).

We had no luck when calling Johnson & Johnson or Pepto Bismal. These companies were unable to disclose or provide the required information that we asked. However, we tried a follow-up call and tried a different approach, but these company representatives were not willing to budge with the disclosure of their company information.

After collecting all the information necessary, we logged into two sites, www.ask.com and www.answers.yahoo.com, where we could pose questions that may be asked by a consumer and helped to answer them:

**Q: Are calcium supplements vegan friendly?**

A: They aren't necessarily unfriendly to vegans. Although, many supplements do not include the source of calcium in their labels. This leaves the possibility of them being naturally derived. There are companies out there that do make supplements for vegans. You can always contact the company directly and ask a representative.

**Q: Is naturally derived calcium the better alternative when taking a calcium vitamin supplement?**

A: This is one of those cases in which the word "natural" can be very misleading. Naturally derived calcium is impure and must go through a rigorous procedure to become safe. It is structurally similar to Lead so they will be found close to one another in nature. There is a risk of lead intoxication from naturally derived sources of calcium. Even if the level of lead is safe according to the FDA, when we add this to other traces of lead that our body takes up daily, it can become dangerous. There is safer forms of calcium supplements who will also help improve the absorbability of the calcium by your body. Some of these are refined calcium carbonate and chelated calcium.

**Q: What is the difference between a white calcium pill and a gray calcium pill?**

A: The difference between a white and gray calcium pill is the source to which the calcium is made from. White calcium pills are made from calcium carbonate and gray calcium pills are made from limestone. However there are multiple sources of calcium carbonate and that factor may affect an individual’s eating habits. Some calcium carbonate is made from oyster shells, so that is not recommended for vegans. Hope this helped to answer your question.

**Q: Does FDA require drugs/ medicine to have the country of origin on their product?**

A: The Country of Origin Labeling law requires foods to be labeled according to country of origin. As years pass by, over the years the FDA has added items to this list required by law to be labeled. However, supplements do not apply. Perhaps over time the FDA would require supplements such as calcium to be labeled because it would be beneficial. Consumers may be inclined to buy products made in the United States. Also, in case of a pandemic, it would be helpful in quarantining the source of the outbreak.

Posing questions online helped with consumers because there have been responses from others interested parties and our own response which are labeled “CLQ” on Yahoo Answers. It shows
that we are not the only individuals out there who are greatly concerned about our own ingestion of calcium supplements. We anticipate more responses to our questions may save someone’s life or helped them enormously in any way possible.

Another portion to our service project was written editorials to our local communities. Although we did not anticipate our letters to be successful, we did hope that we at least made our communities aware and informed. Two group members had their letters published, one in The Cape May Herald and another The Asbury Park Press. Not only have we informed our fellow classmates about calcium, we have informed the online community and the communities in our hometowns.

References:


Letters to Editors:

Irving Robles
Sent to Asbury Park Press

In today’s society, concerns of health and healthy food choices are increasing as each day passes by. As a result, people are taking more and more dietary supplements than ever before because they believe it will make them healthier.

I believe that lack of information on the labeling of supplements is just as criminal as the mislabeling of them. I have been doing some research on calcium supplements and some of their negative side effects. What troubled me the most was the lack of information that is readily available to the everyday user.

Sure, calcium supplements do exactly what they say and help improve calcium deficiencies in one’s body. On the other hand, there are many different types of calcium, some more dangerous than others.

Naturally derived calcium is a bit more dangerous than other forms because it is usually found near elemental lead. This means that naturally derived calcium needs to undergo a process of purification that meets certain standards in order to avoid lead intoxication.

The problem with this is that the average consumer isn’t aware of this process of purification. This information should be available to the average consumer. While looking at some of the brand name calcium supplements on the market, none truly say where their calcium comes from or how it is purified for that matter.

Good things often times come with negative side effects and the consumer should be aware that the right to know what we are consuming is one that needs to be exercised.

Chris Sichel
Sent to The Herald
http://www.capemaycountyherald.com/article/78632-where+does+your+calcium+come

The U. S. Food and Drug Administration (FDA) have made many changes to help with the safety of Americans with ever changing times. The labeling on our everyday foods, drugs, and cosmetics help U. S. citizens understand what they are using/eating, the ingredients inside of the
product, and some of the safety concerns they should have. However, labeling on a box of cereal is much different than a label you might see on a bottle of Bayer Aspirin or on a piece of fruit. The box of cereal may have just the nutrition facts and the ingredients, but a drug product in the U. S. must pass through rigorous review, including specific word usage, where words are placed, the size and color of the font, and much more. Labeling on many U.S. drugs and foods do not contain where the food/active ingredients come from. Why is it that one can pick up a banana at the supermarket and see on a sticker that it is a product of Colombia, but looking at a supplement bottle from a drug store will not reveal the same results? The fact that labeling on drugs in the U. S. is so much more regulated then other food products shows how important of a safety concern drugs are in the U.S., and how much of a potential harm they can cause to the public. I propose that drug labels should include the source of its active ingredients for the safety of the public and for the prevention of toxic disease outbreaks. U. S. citizens reserve the right to know where the active ingredients of drugs originate. This means both the region of the world and from what it was extracted from. This information needs to be readily available for both consumers and federal officials for three main reasons. The drug industry in the U. S. has not been overseen by the FDA properly and is evident in many studies and recalls across the country showing contamination in drug products. Contamination in drug products can be a precursor to disease outbreaks causing nation-wide health problems. If products from a specific region have been contaminated across the globe, it would be easier to stop the outbreak by informing the public of this region’s contamination and to stay away from drugs with active ingredients from that region than if the active ingredients source were not on the label. Second, it is the right of American citizens to know where the active ingredients originate. For example, a vegan individual has the right to know whether or not an active ingredient is extracted from an animal. The third reason why it is important to know where the active ingredients for a drug product are from is because this influences the consumer’s choice. On many clothing products made in the United States, you can find a big “MADE IN USA” with an American flag next to it. Most people in the U.S. are more inclined to buy products from the U.S., and therefore, this could lead to a boost in the downward economy. Certain studies have shown that there is a true connection between domestically produced products and how U.S. citizens favor buying them. Country of Origin Labeling laws (COOL) already require certain products to have on the label where they are from, but drug products are not included in these laws. Since drug products can reach as high or higher population amounts than these food products, it should be just as important, if not more important, to understand where the active ingredients are coming from.

Tiffany Yam
Sent to The Daily Targum

Our consumption of calcium is on the rise and a staple to most individuals preventing their bodies from slowly deteriorating away due to the increase in age.

We all attend our doctors/physicians at least once a year for a yearly check-up. However, as we near the age of around 50, some of us may be unfortunate enough to be diagnosed with osteoporosis. Osteoporosis is a condition that is caused by lack of calcium within an individual’s daily diet. Most of us, if not all will listen to our physicians and intake calcium vitamin supplements in order to prevent osteoporosis from getting worse than the condition it already is
at already. Although as consumers, we fail to understand the origin of where our products are from.

We all have heard everlasting situations about e-coli in chicken, or mad cow disease in beef, and it is only a matter of time when we hear about calcium vitamin supplements being contaminated because of their product origin or their manufacturers mistake.

Calcium was an important vitamin supplement that was further investigated. There is information found on specific products that are over the counter or even prescribed by doctors. An individual’s biggest fear is hearing that their product was produced in another country other than the United States, which instills fear on the consumer thinking that their product is contaminated.

Specifically, information was found out about Caltrate through the pharmaceutical company Pfizer. Caltrate is marketed in New Jersey, through calcium carbonate (no shellfish association). The understanding of this information can help allow the consumer understand that they need not to worry about having an issue on their calcium supplement having a manufacturing malfunction or contamination.

We as consumers should be aware of what we ingest and should not make sure to ask questions to the right authorities, even if a little curiosity sparks our minds. Speak up.