

# Bio-Hack Brief

**Rebecca Johnstone:**  
*Research & Process File*



## **SYNTHETIC BIOLOGY: FOOD FOR THOUGHT**

### **How can we design an edible experience that explores the moral and ethical implications of synthetic biology?**

#### **Context:**

Synthetic biology has become increasingly sophisticated in the last decade. Where once a burger grown in a laboratory was a new and controversial speculation we're now seeing this become a more plausible future. How will we as the general public respond to this new type of food? Should we readily accept and start consuming it without asking the difficult questions? In this brief we're asking you to create some speculative design scenarios that give us food for thought and help probe an audience in debate.

#### **Content:**

We have given you a head start with your research and started the process of filtering by suggesting 4 key themes below. We would like you to choose one of the thematic headings to frame your work.

### **In Vitro feast: Lab grown meats and food**

#### **3. Ethical and social implications of lab-grown produce**

#### **Context:**

Lab grown meat raises some interesting and controversial questions for the general public.

- Should we, as a species be playing with the 'natural' codes of life? Should we be playing God? If food is grown in a lab do you consider it to be natural or fake?
- If cells are taken from a cow and grown into a lab burger does it make it ok for vegetarians to eat?
- Lab-grown food is very new and we don't currently know the health risks associated with it and whether it will have long term impacts.

**How would synthetic food be marketed in the future? Would it have a certain type of branding and what might a typical menu look like? How would we distinguish it on the shelves from 'natural meats and foods'?**

**Examples:**

Carvery & Eat - festivals where the traditional craft of butchery is celebrated

A lab-grown hamburger that has enough protein to feed you for a week

Super size burger that has the same amount of calories as a banana

**Outputs:**

Design a future scenario and visual probes that will engage a conversation around your chosen topic.

Your design scenario should be around 100-150 words long. Your visual design probe needs to be table top sized and should be visually stimulating and thought provoking.

**Be sure to include:**

WHEN? Is this happening now? In 50 years? 100 years?

WHY? Has anything happened in the market to enable this? Has there been technological advancements that have made this possible (the ability to grow meat at scale for example)

WHO is using it?

HOW is it being consumed?

WHAT does it look like?

## Secondary Research

**“Obesity levels in the UK have more than trebled in the last 30 years and, on current estimates, more than half the population could be obese by 2050.”**

Source:

<https://www.nhs.uk/Livewell/loseweight/Pages/statistics-and-causes-of-the-obesity-epidemic-in-the-UK.aspx>

- Self-indulgent society
- Only care about ourselves
- Over-satisfy ourselves
- Don't care about our own health enough

### **Design Scenario:**

More than half the population are now obese, and due to arising technology we have now been able to create lab grown food that will enable you to eat one of these 'tablets' a day and gain the necessary sustenance. Taking away the fat and sugars in the foods.

- Does this remove the culinary arts?
- Is this just for poor people?
- It's cheaper to buy crap food than proper food so is this an alternative solution or part of the problem?
- Will restaurants disappear, except for 5 star etc where the rich go to eat?
- Is the tablet pharmacy led, prescribed or can it be bought?
- How much does it cost?

### **What's the design?**

- The food, if I can actually get it there. A menu? Prescription bottle? Instructions?

### **18th Jan meeting with Tom:**

- Huel/ Soylent - Milkshakes in Silicone Valley. Boil it down...not a magic pill - see if I can craft something out there already.
- Make miniature meals for pet rats etc.
- Cube of each food. Artistic. Beautiful/graphic.
- Black mirror - Netflix Series

Case studies? - Follow through to show what's possible. Smoke and mirror. Needs to leave them mildly troubled for the next day. Top 5 Black Mirror episodes to watch.

3 examples of how to demonstrate this...and I'm going to do...

### **Exhibitions to look at:**

Digital Revolution Exhibition, The Future is Now - VNA

Barbican? Damien Hurst

For Monday - explore more ideas and then have a Skype call. Midday.

Making bread - yeast makes it all happen but only a small part of the ingredients. Something needs to be the active ingredient. How is this information going to be presented? Active ingredient - table top size.

### **Monday 25th meeting:**

- Talk on Radio 4 - about Bio Food. Future of food.
- Go Outdoors - expedition food. 700kal.
- Freeze dry protein, carb and fat. Three pots, one of each. Mix it up and make your own meal using tweezers.
- On table - set of questions to go with the project. Prompts to enable conversation.
- For Thursday - paper prototype of thing in show to scale if possible.

## Black Mirror

Black Mirror is a suspenseful, satirical series that taps into our collective unease about the modern world. They use high-tech equipment to explore situations that involve technological innovation and human instinct. The screenshot is of Season 1, Episode 3 called 'The Entire History of You'. It involves a future where you can keep all of your memories inside this device implanted in your brain. You can record and look back on memories with exact clarity. It's a unique view on human development.

Many of the episodes make you feel uneasy. This particular episode makes you feel sad towards the end. The infidelity within the episode is highlighted by this use of technology. At first the male character appears insane, as this technology is what helps him uncover the truth about his wife. The end of the episode sees him cutting into his own skin to remove this device. Making you think that this reality is undesirable and will perhaps lead to situations you don't want to find out about.

The series can be found on Netflix and has four seasons. Provoking thought and questioning how far technology will develop in the future.



This was recommended due to it links to bio-hacking. Many of the episodes involve hacking the body. Whilst not relating to the path of food, it's useful to understand the development of how humans can use bio-hacking in other ways. All technological advancements will develop both social and cultural aspects of society.

What if this world was possible? Can you imagine it happening in the near future? Or do people think of it as a far fetched series that's more sci-fi orientated? It's interesting to think of and indeed sparks social debate with those that have watched the series. Hopefully more ideas will develop from future episodes.

## Radio 4: What Delicious Future?

Radio 4 podcast called 'What Delicious Future?'. This information below has been taken from the first half of the podcast, focusing on the creation of the 'impossible burger'. Created by start up company Impossible Food. Good source of information based around bio-hacking and the future of food.

In San-Francisco, several places are now serving 'the impossible burger'. It has taken nearly a decade to develop. All the ingredients of this burger come from plants. This research and development is now shaping the future of our food. Looking at not just what we are eating, but why are we eating it?

The start up company 'Impossible Foods' in California, has now become one of the biggest food stories in recent months. They have taken the first step to taking on the meat industry. This burger isn't aimed at vegetarians or vegans, but aimed at meat eaters. Hoping to convert them, by ensuring they have the exact same experience as a normal burger. They have done this by understanding the fundamental question, "What makes meat taste like meat?" Identifying a molecule called heme, which looks and tastes like blood. It has high levels in meat and is important to it's flavour. People love to eat meat, and if this can appeal to meat eaters it will open a gateway to future foods. Animals are considered an unsustainable and inefficient way to transform plants into meat.

Meat science has conducted decades of study,



with no one really understanding why meat tastes like meat. It's a chemical reaction with other ingredients that makes it taste like meat. One concentrated source of heme comes from plants in the bean and pea family. You harvest the root system in soy bean fields to get the heme, then mix it with potato protein, wheat, gluten and coconut. The taste depends on how you cook it. It starts bright red, then turns brown on the outside. It's a similar experience to cooking a normal hamburger as the textures and flavours are very similar. Some chefs even say they prefer aspects of this burger over a 'real' burger. Impossible Foods have approached a food problem as outsiders to the

food industry.

A lot of Silicone Valley start ups are now coming together and we are starting to see solutions to other food products. Impossible Foods has already had 75 million pounds investment. This is definitely something people are interested in exploring and developing. It's also easy to accept something that looks like what you already eat. If you can't tell the difference it should be a pretty easy sell.

Source: <http://www.bbc.co.uk/programmes/b09nrvld>





### **The Branding of Lab Grown Meat**

"Laboratory-grown meat is projected to hit grocery store shelves within the next few years, and the benefits are easy to understand. Meat that has been grown in a petri dish requires no animal slaughter, produces little waste, and results in the emission of 90% less greenhouse gases, among other environmental bonuses. The risk of contamination or undetected bacterial exposure is dramatically reduced, and, purportedly, it tastes basically the same as "real" meat."

"Clara Foods, which produces chicken-less egg whites from genetically modified yeast, does not call its product "artificial" egg whites - instead, they use the much nicer-sounding "clean egg whites"."

Article based around how these new foods will be branded in shops. Language is key, it is kept simple and easy to understand. Words such as 'fermented' and 'cultured' are avoided. A good article to read to consider where the future of food will be heading and how it will be implemented into our culture. People are more likely to try this new type of food if it's similar to something already on the market. It just needs to be branded as if it's something better, or "cleaner".

Source: <http://worksdesigngroup.com/branding-lab-grown-meat/>

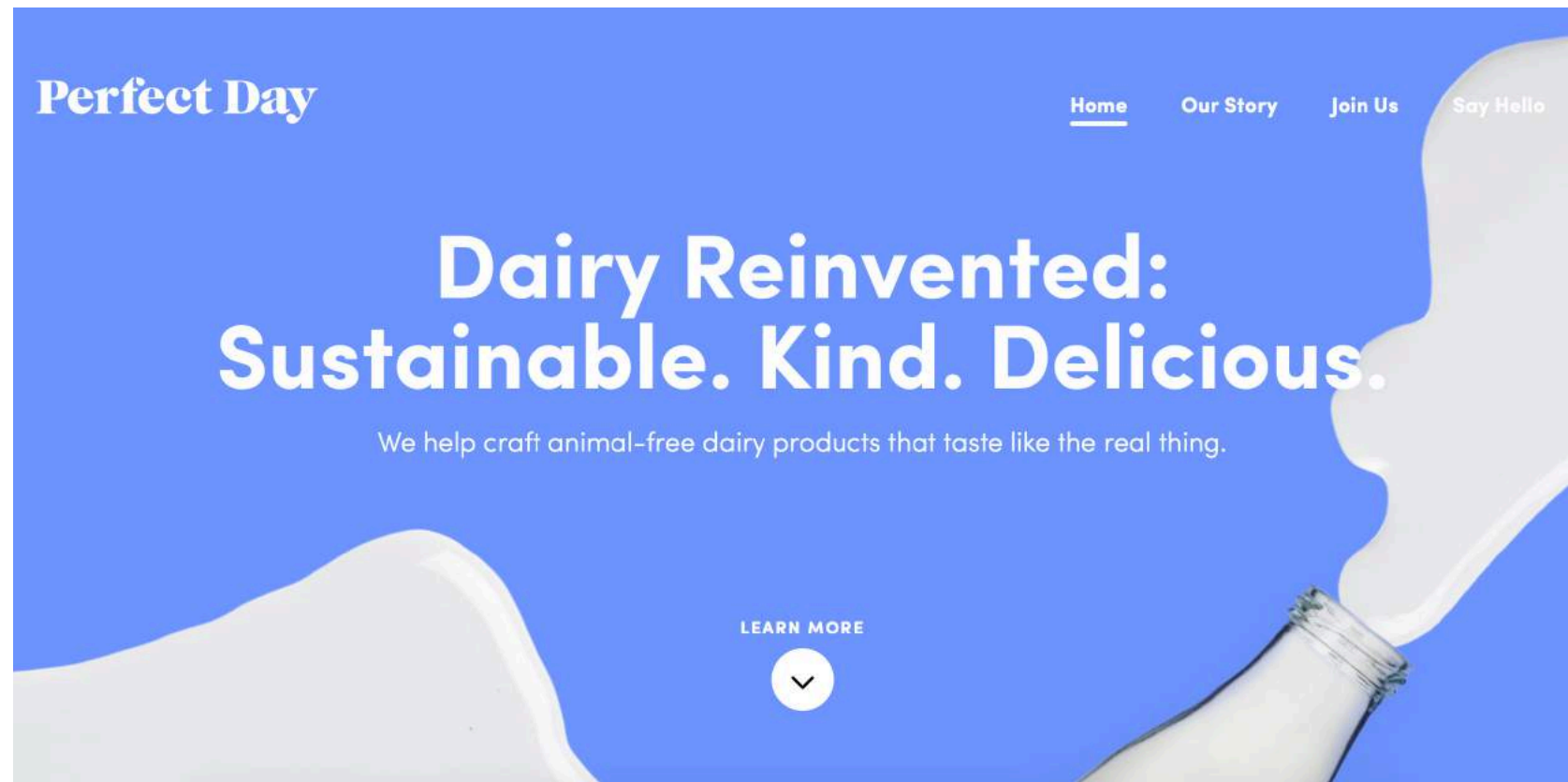


## **Clara Foods**

Clara Foods are working towards a disruptive advance in food technology by creating the world's first animal-free egg white. There is a growing public distaste for the environmental, animal welfare, and health compromises of industrial-scale egg production. Clara Foods is aiming to subvert this moral and economic deadlock by taking the chicken out of the equation.

Egg whites are a main binding ingredient in lots of baking recipes. This is going to be revolutionary and brings questions around veganism and the foods they are willing to consume once you remove the animal.

Source: <http://www.clarafoods.com/#homepage>



## **Perfect Day**

"We wanted to enjoy the dairy foods we love without compromising on how they taste or our commitment to the environment.

We're creating a better way to make dairy proteins - the same nutritious proteins found in cow's milk. And we're doing it without the help of a single cow."

"Using yeast and age-old fermentation techniques, we make the very same dairy proteins that cows make."

Source: <http://www.perfectdayfoods.com>



**Could lab-grown fish and meat feed the world - without killing a single animal?**

Source: <https://www.theguardian.com/lifeandstyle/2017/sep/20/lab-grown-meat-fish-feed-the-world-frankenmeat-startups>



**WasteBuster: food for the sustainable future.**

"On a global scale, approximately 40 to 50% fruits and vegetables end up lost or wasted along the food supply chain. Fruits and vegetables wastes are often disposed at landfill, or heat-treated and used as compost."

"Snacks are common food suitable for all ages and are typically designed to be portable and satisfying on-the-go food. This will be the first ever "waste-snack" which will satisfy hunger and at the same time, provide life-saving nutrition whilst reducing food wastage."

Source: <http://labs.tffchallenge.com/team/2016/wastebuster/>





## Cubes

"These 98 isometrically-arranged foods like pomegranates and tuna might look like a meal from an unreasonably anal sci-fi utopia, but design studio Lerner & Sander used a very 21st century technology to make these tasty cubes."

"Dutch newspaper De Volkskrant asked us to make a photograph for their documentary photography special, with the theme Food. We transformed unprocessed food into perfect cubes of 2,5 x 2,5 x 2,5 cm."

Source: [https://creators.vice.com/en\\_au/article/vvy3em/heres-how-designers-cut-a-grid-of-perfectly-isometric-food-cubes](https://creators.vice.com/en_au/article/vvy3em/heres-how-designers-cut-a-grid-of-perfectly-isometric-food-cubes), <http://lernertandsander.com/cubes/>

Graphically designed, stand out photograph. Imagine what it would be like seeing this in an exhibition. Colourful, unique and engaging. 2.5cm cubes, working with scale as well. Intrigue is created due to all these factors, especially when you try to guess what food the cube has been cut from.





### **Meat the Future Exhibition**

“The exhibition is set up as a restaurant of the future and serves 30 exquisite signature dishes cooked to the highest standards using a revolutionary new ingredient: in vitro meat.”

Source: <https://www.nextnature.net/projects/meat-the-future/#updates>

Thought-provoking, engaging and interactive. Sparking conversation around the topic, providing futuristic meals which would be made with in vitro meat. Interesting to see how this is applied in an exhibition setting. There wasn't as much detail as I had hoped to find around the exhibition. More information was provided around the cookbook and virtual website created, where you can select your menu and make a reservation for the year 2028.





### **Eat Me Exhibition in Trapholt**

“Trapholt is the one Danish museum displaying art, applied arts, design and furniture design alike.”

“Artists and designers show us what urgent social issues food touches on. As visitors to the exhibition we gain a better understanding of our own views and attitudes, and get ideas as to how we ourselves can act in our own lives.”

Watch the video on the link below to gain an understanding of the exhibition and projects presented:

<https://www.youtube.com/watch?v=cdh5fg-ziTk>

Source: <http://www.trapholt.dk/museum/6-exhibitions/>



## Christopher Boffoli - Big Appetites

"Best known for his Big Appetites work which features tiny figures posed against real food landscapes."

"A more recent image is of a rotund man alone against the French fry barricaded riot police and the promise of something great if he can just get by. The caption: "It was the precise moment that Larry knew those advanced judo lessons would pay off.""

"Compel the viewer to look more closely at the world around them and to consider deeper truths about our relationship to the Food."

Boffoli often uses humour to engage the audience with his creations. The use of scale is very important in his work. Miniatures always create intrigue, crafted with care and detail. Food is a huge part of culture all around the world, so it is relatable to a wide audience. The juxtaposition of scale between the figures and food emphasises how the food plays such a huge part of the world's ecosystem. It's a fundamental part of life, that sustains us and we have a complex relationship with food. We often indulge in foods we know are bad for us. Or eat the same processed foods, "the vast majority of us tend to eat from the same prosaic revolving menu that is fast and easy if not always especially nutritional."

Source: <http://www.bigappetites.net>, <http://www.>



[trapholt.dk/museum/6-exhibitions/94-christopher-boffoli---big-appetites/](http://trapholt.dk/museum/6-exhibitions/94-christopher-boffoli---big-appetites/)

Projects looked at so far all work with scale. This is going to be one of the main focus points within my exhibition piece. As a society, we often over-indulge and eat until we feel so full that we do not even want to walk afterwards. It's going to be interesting to create a food that is sweet or tablet sized, that will provide enough

sustenance and nutrition to ensure you don't go hungry for the rest of the day. This concept is already developing, with products such as Huel or Soylent providing shake meal replacements. Yet, imagine if this could be made efficient - into a tablet or sweet you can eat on the go? No preparation needed. This should hopefully spark the debate and conversation it has been intended to create.

# Soylent Drink

Soylent Drink provides 20% of your daily nutritional requirements and 400 kcal. in each 14 oz. bottle.

[Shop Soylent Drink](#)



## Soylent

### Food reformatted

"If you've ever skipped breakfast after rolling out of bed too late...if you've ever missed a lunch because of a busy schedule...if you've ever had a guilty conscience over a midnight microwave burrito...Soylent is made for you.

Protein, carbohydrates, lipids, and micronutrients: each Soylent product contains a complete blend of everything the body needs to thrive. It turns a full meal into a one-step process. It makes things a lot less complicated. And when you're busy, it takes eating off your plate."

"All Soylent drinks are made from plants, they require less water and produce less CO2 than livestock. Our drinks also reduce food waste with a year-long shelf life and don't require refrigeration, unlike fruits and vegetables that get tossed after a few days or weeks in the fridge."

Source: <https://www.soylent.com>

Variety of different products available, including drinks or powder. As part of my development and experimentation phase it would be interesting to see if I can take an existing product to help create the tablet/sweet form. This would involve compressing or experimenting with the powder form to see if it can be shaped/moulded into another format.

## Huel

"Huel is a nutritionally complete powdered food that contains all the proteins, carbs, and fats you need, plus at least 100% of the European Union's "Daily Recommended Amounts" of all 26 essential vitamins and minerals."

"Huel is 100% vegan (better for the environment and animals), super convenient, high in protein (148g per 2000 calories) and fibre (35g), contains just 4.6 grams of sugar per 2000 calories (no added sugar), requires minimal packaging and has a shelf-life of 12 months (so zero food waste)."

"Huel contains a carefully chosen blend of Oats, Pea Protein, Flaxseed, Brown Rice Protein, MCTs from Coconut, Sunflower Lecithin, a bespoke Vitamin and Mineral Blend, Vanilla Flavour and a Sweetener."

### Why do we need Huel?

"We are in the middle of a food crisis. Modern food production methods are inefficient, inhumane, and unsustainable. The world produces 1.5 times enough food to feed every person on the planet, yet over 800 million people do not have enough food to eat. In the UK, 30% of all food is thrown away. 100 million children in developing countries regularly go hungry and are significantly underweight.

On top of that Britons are getting fatter and



Nutritionally complete food, simply delivered

10 million meals bought - enough to feed London and Paris combined

Buy Huel

The advertisement features two large white bags of Huel powder, a bowl of granola, and two boxes of Huel Granola (Original and Berry flavours). A small packet of Huel granola and a chocolate-covered granola bar are also shown. The background is a dark grey gradient.

more unhealthy. 64% of adults are overweight or obese and obesity related conditions are on the increase. Over 4 million people have diabetes, and over 15 million are classed as borderline diabetics. "Almost two in every three people in the UK are overweight or obese and are therefore at increased risk of Type 2 diabetes" Chris Askew, Chief Executive of Diabetes UK. "Something has to be done!"

Source: <https://uk.huel>.

It's important to look at the information being presented on these websites, to gain a better understanding of who their target audience is. The language they use and terminology is what will help consumers better understand the product they are buying.

Some key points may be to understand the ingredients of what they are consuming. The

process of how the product was made, or the benefits not just the product but the brand will bring to their lives. The explanation of 'Why do we need Huel?' really ties in with the reasoning behind my project idea. We need more sustainable food, that's efficient and effective.

Looking into what we actually need to sustain ourselves and the best possible food sources to achieve this. Is it important that the product is vegan? Does it need to contain certain ingredients to achieve it's outcome? What are these ingredients? What will the audience want to know about the product? Are statistics and figures needed? All of these are important questions that need to be considered carefully in order to spark social debate in the visitors of the exhibition.





## Primary Research

If my product/exhibition does involve pills, this branding is a good example of one that really stood out to me. Out of all the products on the shelf this was the most engaging. Bright colour and unique, playful name that got the point of the pill across to the audience. Simple and clearly defined 'How to use?' instructions. The product helps you loose weight, but is not a food replacement product like that of the protein shakes etc that were looked at such as Huel. If I can help it, I would like to avoid branding a product as I feel like branding is not one of my strengths.

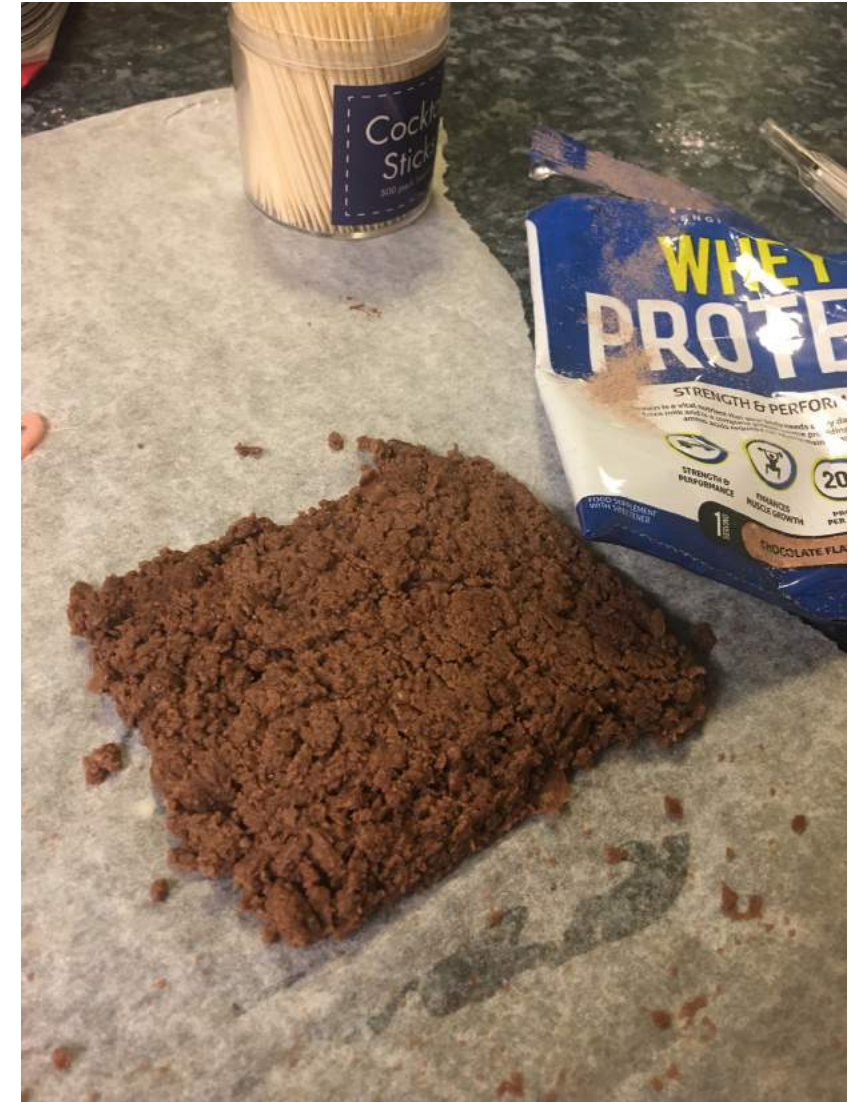


### **Primary Research**

My initial idea was to try and reduce protein powder by either adding small amounts of water and compressing the powder or boiling it down. I bought a number of individual powders, flavoured strawberry and chocolate. I bought the products from Holland and Barrett, as I wanted to see if any similar products existed already. Most products were either protein bars or powders which have to be mixed at home.

It was hard trying to understand how to manipulate the powder, to create the consistency I required. Mixed results occurred from this experimentation which can be found on the next page. It's interesting to note how the experiments changed after being left at room temperature for a while, they started to take different forms and harden, which meant they were easier to shape.





*Experimentation of trying to reduce protein powder to create a small compact consistency such as a sweet or tablet.*

## **Ideas:**

Last night ideas were racing as my mind was trying to close down to go to sleep. Below are the quick notes that I took to clear my head and express what ideas were forming:

- Shot glasses with waiters serving them. Sophisticated. Silver trays.
- Unflavoured - use food colouring to make it more surreal and experimental.
- Shot glasses - plastic or glass? Think about the waste, should they have a waste bin next to the display? How are they displayed? Colour - layered on top of each other?
- Are the shot glasses next to three different dispensers and each has a different 'flavour'.
- Idea - a small shot has the same effect as a whole glass/shake. The idea of bio-food evolving, that less is in fact more.
- Is the product going to be packaged? Would it need branding? Would it have refill areas? Could you take in the waste packaging and get a discount?

## **Thursday 25th Jan Meeting:**

Questions and prompts to consider when developing my idea. There is a lot to consider depending on what angle the project takes. They liked my initial experiments and gained positive feedback from that, but now it needs to develop to something that has a context and can be prepared for an exhibition.

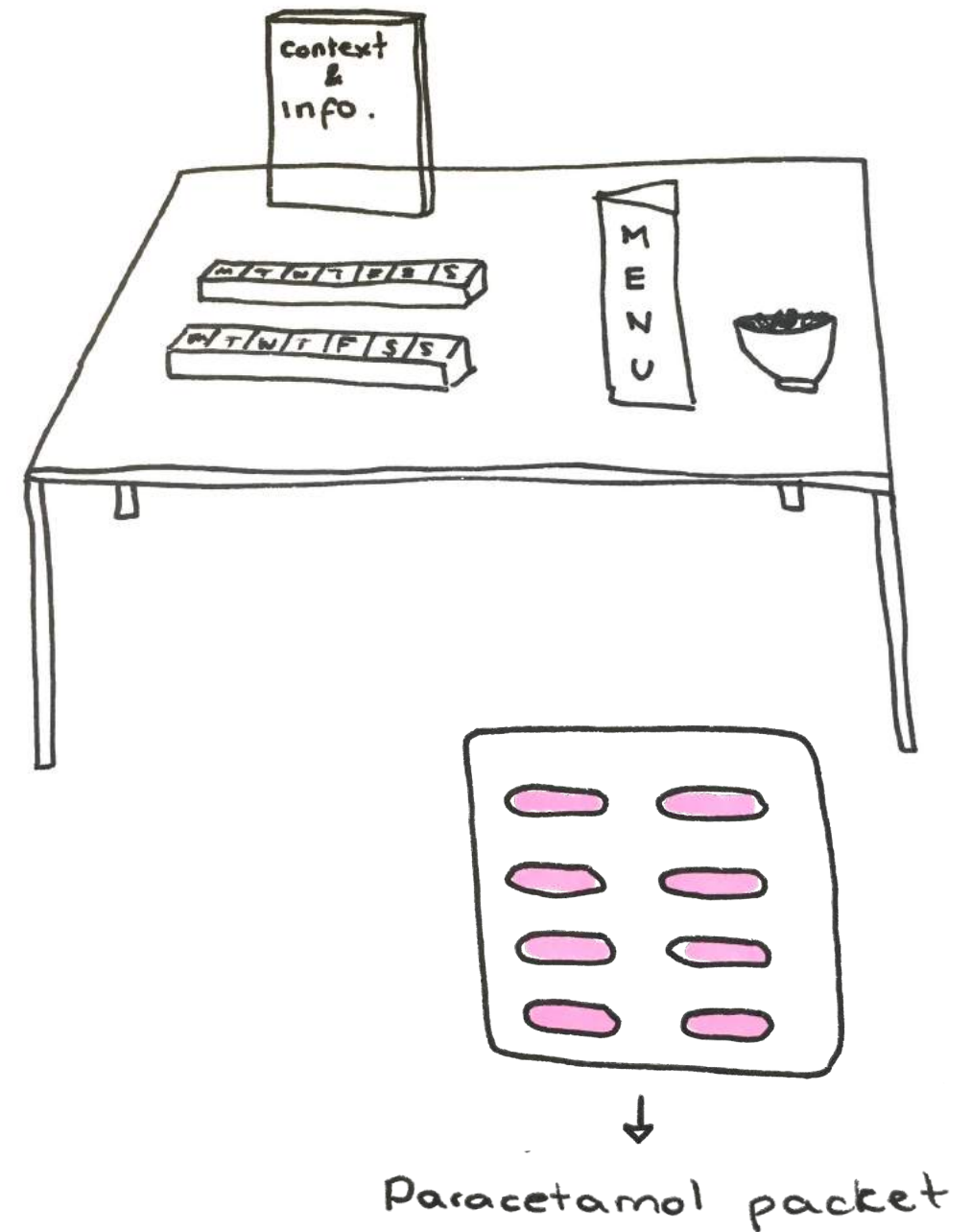
- How many people can it feed? For example, would a lorry of these be able to feed a underdeveloped country?
- Clinical - take away the pleasure? A shot glass is pleasurable - make them more into pills. It's a health issue...? You can still eat for pleasure but you don't have too.
- Social aspect? - Potential focus.
- Resources?
- Scale - a full meal with calorie info next to it compared to info with this. Visual explanation. What is the prompts/questions?
- What amount of water goes into the production of xyz...vs into this protein product?
- Broad? - Prompts around environmental and social.
- Paracetamol - can I put these things into the packet? Try and experiment visually.
- Latex - plaster? Jelly beans?
- Medical practice? - No labels. Would it be a Mon-Fri pill box?
- Menu - different coloured pills have different supplements not one fits all. Would this be food colouring? Add to the protein packs.

### Context:

We are in the middle of a food crisis. Current production methods are inefficient and unsustainable. 800 million people struggle to feed themselves every day, yet the world is producing 1.5 times enough food to feed every mouth on the planet. In the UK alone, we throw away 30% of all food imported and consumed. On top of that we as a society are living unhealthy lifestyles and getting fatter. 64% of adults are overweight or obese and obesity related conditions are on the increase. Over 4 million people have diabetes and over 15 million are classed as borderline diabetics.

### Display piece:

Due to arising technology we have now been able to create lab grown produce that will enable you to take one of these tablets a day and gain the necessary sustenance. This tablet will provide the necessary fats, carbs and proteins to last all day, ensuring you don't go hungry. Taking away the self-indulgence of stuffing yourself with food. Instead you can take pleasure in knowing your taking care of your body, but you can still enjoy a social meal out with friends or family if you desire.





## Research:

Within a healthy, balanced diet, a **man needs** around 10,500kJ (2,500kcal) a day to maintain his weight. For a **woman**, that figure is around 8,400kJ (2,000kcal) a day. These values can vary depending on age, metabolism and levels of physical activity, among other things.

**What should my daily intake of calories be? - Health questions - NHS ...**  
<https://www.nhs.uk/chq/pages/1126.aspx?categoryid=51>

Source: <https://www.nhs.uk/chq/pages/1126.aspx?categoryid=51>

“Projections of population growth established in 2017 predict that the human population is likely to keep growing until 2100,[1] reaching an estimated 8.6 billion in 2030, 9.8 billion in 2050 and 11.2 billion by 2100, while the 7 billion milestone was reached in 2011.”

Source: [https://en.wikipedia.org/wiki/Projections\\_of\\_population\\_growth](https://en.wikipedia.org/wiki/Projections_of_population_growth)

“Obesity levels in the UK have more than trebled in the last 30 years and, on current estimates, more than half the population could be obese by 2050.”

Source: <https://www.nhs.uk/Livewell/loseweight/Pages/statistics-and-causes-of-the-obesity-epidemic-in-the-UK.aspx>

“ On average, a moderately active 125-pound woman needs 2,000 calories a day; a 175-pound guy with a similar exercise pattern needs 2,800 calories.” List provided of the different vitamins, nutrients and proteins you need to keep a balanced diet. Useful to understand what the tablets would need in them, to help provide a balanced diet.

Source: [https://www.health.harvard.edu/newsletter\\_article/good-nutrition-should-guidelines-differ-for-men-and-women.aspx](https://www.health.harvard.edu/newsletter_article/good-nutrition-should-guidelines-differ-for-men-and-women.aspx)



**Three Course Dinner Chewing Gum**

Source: [http://charlieandthechocolatefactoryfilm.wikia.com/wiki/Three\\_Course\\_Dinner\\_Chewing\\_Gum](http://charlieandthechocolatefactoryfilm.wikia.com/wiki/Three_Course_Dinner_Chewing_Gum)



### **Nootrobox is now HVMN and will sell biohacking products beyond nootropics**

“If none of what’s in the above headline makes sense, you probably haven’t been following the biohacking trend for the last couple of years. But Silicon Valley is brimming with tech execs trying to become faster, stronger and smarter by “hacking” their genetic code through various experimental methods called biohacks.”

Source: <https://techcrunch.com/2017/06/27/hvmnafterall/>

“Nootrobox is a system of 4 nootropic blends, each targeting a specific aspect of cognitive performance. Designed to work together, they offer a complete toolkit to provide immediate clarity, long-term enhancement & protection of brain and body, and improved sleep quality.”

Source: <https://hvmn.com/nootrobox>

HVMN sells these brain enhancement products. Each with a different function to improve your cognitive or physical performance. Silicon Valley is full of these start up initiatives, developing tablets for everything. Will people eventually turn to a tablet diet? Taking a variety of them to help improve different functions - but could this be turned into a food replacement too?



## **PROLON - The First and Only Fasting Mimicking Diet**

### **5-Day Fasting Mimicking Diet**

“Based on over 25 million dollars’ worth of research and decades of clinical studies by Professor Valter Longo, ProLon allows your body to achieve the health benefits comparable to water-only fasting. The cellular changes that occur during the fast allow you to have the freedom to go back to your usual lifestyle for the remaining 25 days of the month. Complete the programme 3-12 times per year to maintain the long lasting benefits of fasting.

ProLon® is fasting with food. Meals come in 5 small boxes, one for each day, that include plant-based energy bars, soups, a variety of snacks, drinks, and supplements. All ingredients have been studied and carefully designed to nourish your body and promote positive changes.”

Source: <https://prolon.co.uk>



LONGEVITY 2017

# How Silicon Valley Is Trying to Hack Its Way Into a Longer Life

Alexandra Sifferlin

Feb 16, 2017



For more, visit *TIME Health*.

## How Silicon Valley Is Trying to Hack Its Way Into a Longer Life

"Biohackers in Silicon Valley and beyond have long experimented with the idea that a fistful of supplements, taken in just the right combination, may be the antidote to aging. Now, scientists and businesspeople are experimenting with the idea that just one or two pills, taken daily, may also get the job done."

"These supplements, called nootropics or sometimes "smart drugs," promise to sharpen your thinking and enhance mental abilities. Many common nootropic ingredients--including the sleep-enhancing hormone melatonin, energy-boosting B vitamins as well as caffeine--are already present in the foods and pills that people consume on a daily basis."

"Calorie restriction--the practice of consuming nothing but water for a day at a time or drastically slashing calories a few days per week--has been popular for decades among eternal-youth seekers and health nuts alike. Now some companies are taking the guesswork out of it with fasting-diet meal-delivery kits."

This article was great to understand some of the start ups in Silicon Valley. From anti-aging supplements, brain-enhancement drugs to calorie restriction diets.

Source: <http://time.com/4672962/silicon-valley-longer-life/>



*Attempting to mould the protein powder into an existing tablet mould.*





*Experimentation of cutting into tablets and product testing.*

**Information to Present:**

This is the text that will accompany my piece. There may be tweaks to this before the final exhibition but this is where it currently is ready for Fridays meeting. The text provides context and prompts for the audience to spark social debate.

**Main question:**

What if we no longer needed food to survive, but instead could gain sustenance from 3 tablets a day?

**Context and Sub Questions:**

We are in the middle of a food crisis. Current production methods are inefficient and unsustainable. 800 million people struggle to feed themselves every day. With an estimated population projection of 9.8 billion by 2050, is this tablet the solution to agricultural demands?

All the necessary nutrients are provided within these tablets. Would a truck load be able to feed an underdeveloped country?

We as a society are living unhealthy lifestyles and getting fatter. Current estimates show that by 2050 more than half the population would be obese, could this tablet provide the solution?

In Silicon Valley, meal replacement products are well underway, is this tablet the future of food? What would happen to our fine dining and fast food industry? Would this be the end of our social dining culture?

**Statement about your piece:**

The red tablets are recommended for female consumption providing 700 calories each. The blue tablets are recommended for male consumption provided 800 calories each. Each tablet is packed with the necessary nutrients, vitamins, fats, protein and carbohydrates. The tablets will provide enough sustenance for approximately 4-6 hours depending on the range of activities conducted within that time period.



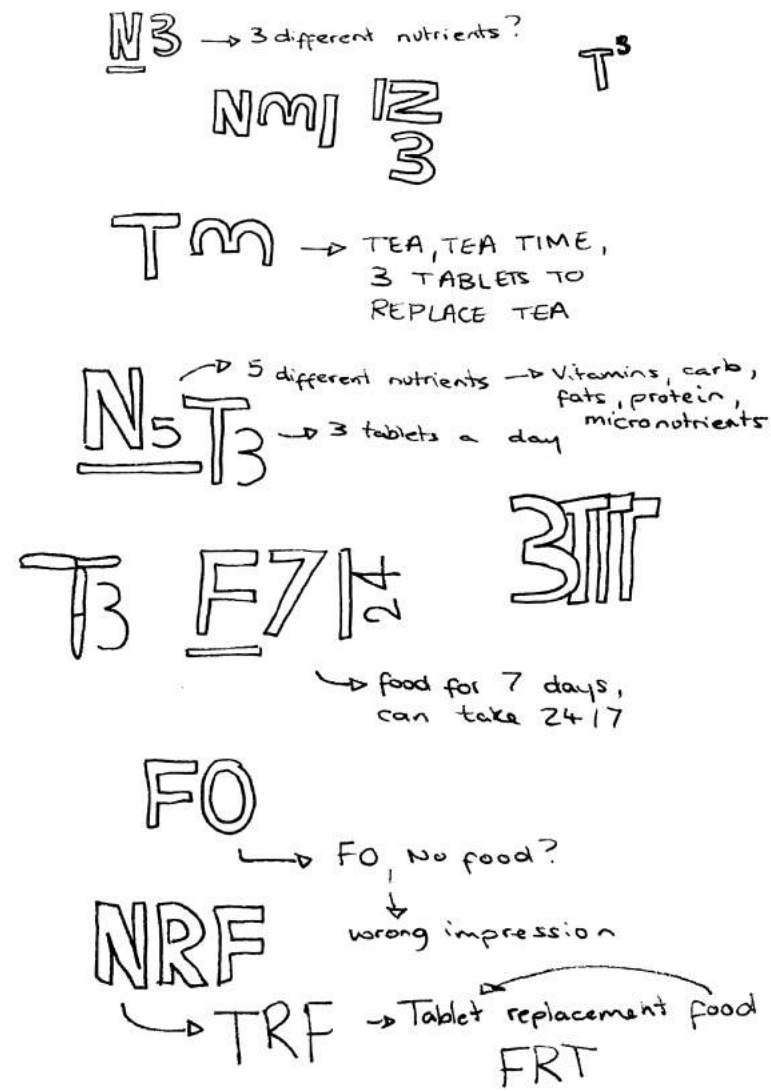


### Friday 2nd Feb Meeting

Feedback in note form:

Concept is strong, love the idea and my writing reflects that whilst giving context. What else is needed on the table?

Is it context in the form of an infographic or something else? We need to show the context of how we actually got to this point. For example the food, to Huel shakes, to the tablet. Think about the best way to do this and what else is needed to make people buy into this 'future of food' concept.



### Friday 2nd Feb Meeting

From the feedback on Friday, it was mentioned that all our projects feel slightly separate and that it would be good if we could unify all of our project through branding similar to that of the 'B6' project. 'B6' is one of the groups completing the brief as well. Overall, there are five different groups or individuals, each tackling the brief in a different way. Yet, we will all be presenting our pieces together at the two evenings at Makerversity. So, whilst we are all working on them separately, they must still feel like part of the same exhibition.

These were my initial logo developments in regards to this feedback. I wanted a quick turn around time so I could continue more with the concept and exhibition piece. Branding is not something I wanted to focus on as it is not one of my strongest skills. I liked the 'T3' logo and started to develop this into my product and brand.



## Original Ingredient Information

\* Information for T3 Red (calorie intake more specific for female consumption).  
\* See our other products for products relevant to children and males.

**Ingredients:** Pea Protein, Flaxseeds, Brown Rice Protein, Protein Blend (Whey (Milk) Protein Concentrate (WPC80), Hydrolysed Whey (Milk) Protein, Whey (Milk) Protein Isolate, Soya Protein, Emulsifier (Soya Lecithin), Maltodextrin, Sweetener (Sucralose), Starch, Vanilla Flavouring (Sulphites) Lactoperoxidase (Milk), MCT Powder (from Coconut), Sunflower Oil Powder, Micronutrient Blend\*.

\* Potassium Chloride, Coconut Flour, Calcium Carbonate, Vitamin C, L-Choline Bitartrate, Lutein, Plant-Based Vitamin D3, Lycopene, Vitamin E (as D-Alpha Tocopheryl Acetate), Niacin (as Niacinamide), Vitamin K2 (as MK-7), Vitamin A (as Retinol Acetate), Vitamin D2, Pantothenic Acid (as Calcium DPantothenate), Vitamin B6 (as Pyridoxine Hydrochloride), Riboflavin, Vitamin K1, Chromium Chloride, Potassium Iodide L-Methylfolate Calcium, Biotin, Vitamin B12 (as Cyanocobalamin).

**For Allergens - See ingredients in bold.**

**Guidance notice:** Women who are pregnant or nursing and children should consult our website.

**Storage:** Store in a cool, dry place. Do not open until time of consumption.

**The Best Before Date is printed to the bottom right of the packaging. Do not consume after this date.**



**Formulated and manufactured in the United Kingdom for:** T3 Limited, Aylesbury, Buckinghamshire, United Kingdom, HP19 8HL.

T3\* is a trademark of T3 Limited.

### Nutrition Information

	Per 500mg Tablet
<b>Energy</b>	2928kJ 700kcal
<b>Fat</b>	13.2g
- of which saturates	2.4g
- of which monounsaturates	2.8g
- of which polyunsaturates	7.7g
<b>Carbohydrate</b>	36.7g
- of which sugars	1.0g
<b>Fibre</b>	7.9g
<b>Protein</b>	29.6g
<b>Salt</b>	0.5g

\*Reference of daily intake per 500mg tablet. Recommended daily intake of 3 tablets in a 24 hour period. May take up to two additional tablet depending on physical exhurtion with that period. Maxiumum 5 tablets in a 24 hour period.

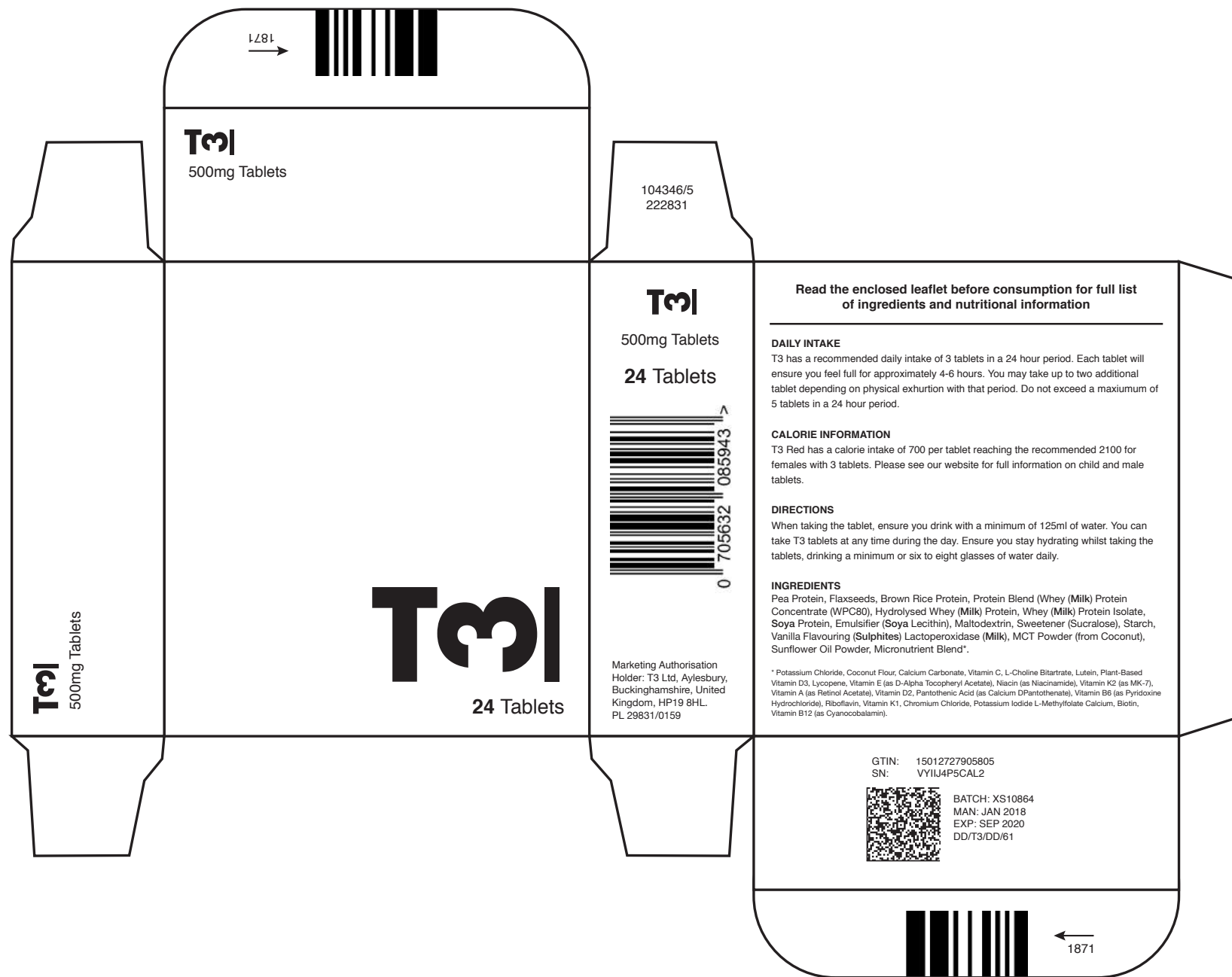
### Vitamins, Minerals and Amino Acids

	Per 500mg Tablet
Vitamin E (mg)	2.4
Vitamin C (mg)	60
Thiamin (mg)	0.3
Riboflavin (mg)	0.3
Vitamin B6 (mg)	0.3
Pantothenic Acid (mg)	1.2
Potassium (mg)	699
Chloride (mg)	360
Calcium (mg)	200
Magnesium (mg)	22
Iron (mg)	7.8
Zinc (mg)	4.0
Choline (mg)	110
Lycopene (mg)	1.0
Lutein (mg)	1.2
Omega 3 (g)	3.1
MCTs (g)	1.2
Trans Fat (g)	<0.1

### Information with Product

To make the pill seem more realistic, I created an ingredients leaflet which was inspired by the information on Huel's website (<https://uk.huel.com/pages/nutritional-information-and-ingredients>). By using this as a template, I was able to recreate a realistic and believable leaflet.

This tablet is taking inspiration from Huel, proposing what products this brand could eventually inspire into development. The ingredient information therefore uses a lot of the same ingredients Huel does. Yet, also adds most of the ingredients used in the Protein powder (<http://www.hollandandbarrett.com/shop/product/precision-engineered-whey-protein-chocolate-27g-60030900?skuid=030900>). By using a combination of the two, I'm hoping it provides a good basis of what is actually in the product they are seeing but also what would be in the product if it was professionally made in the food industry.



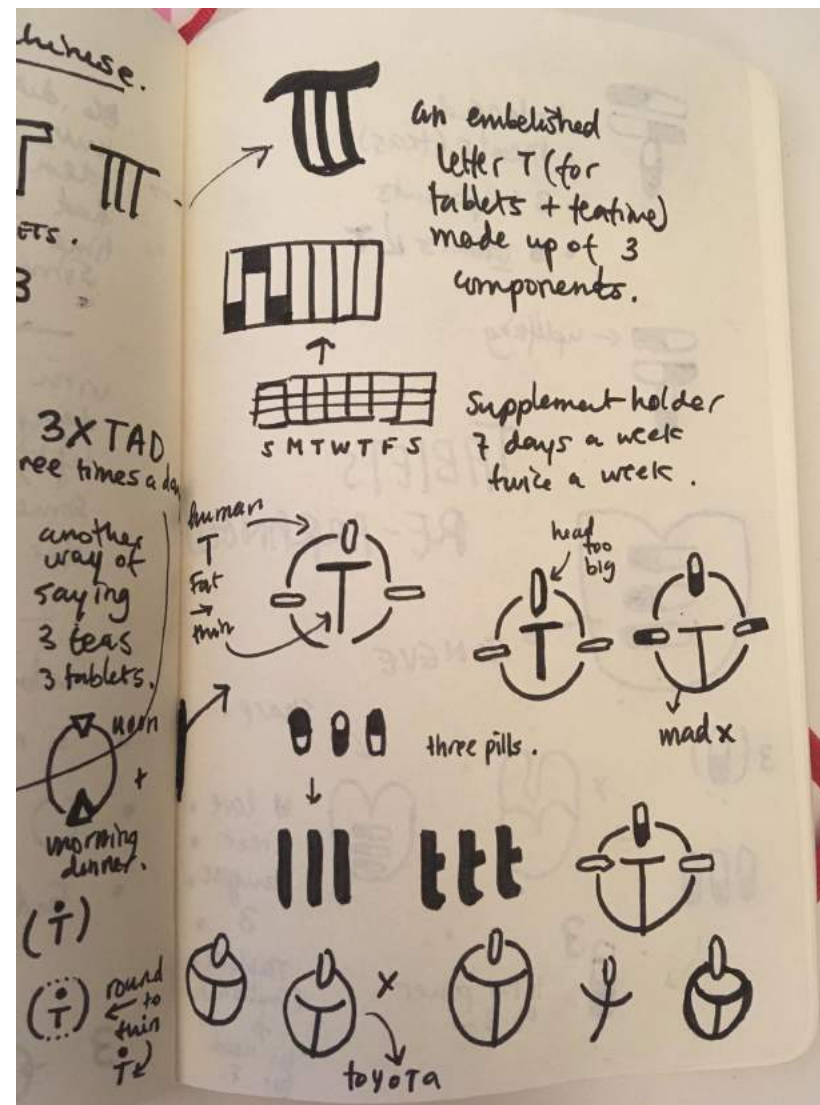
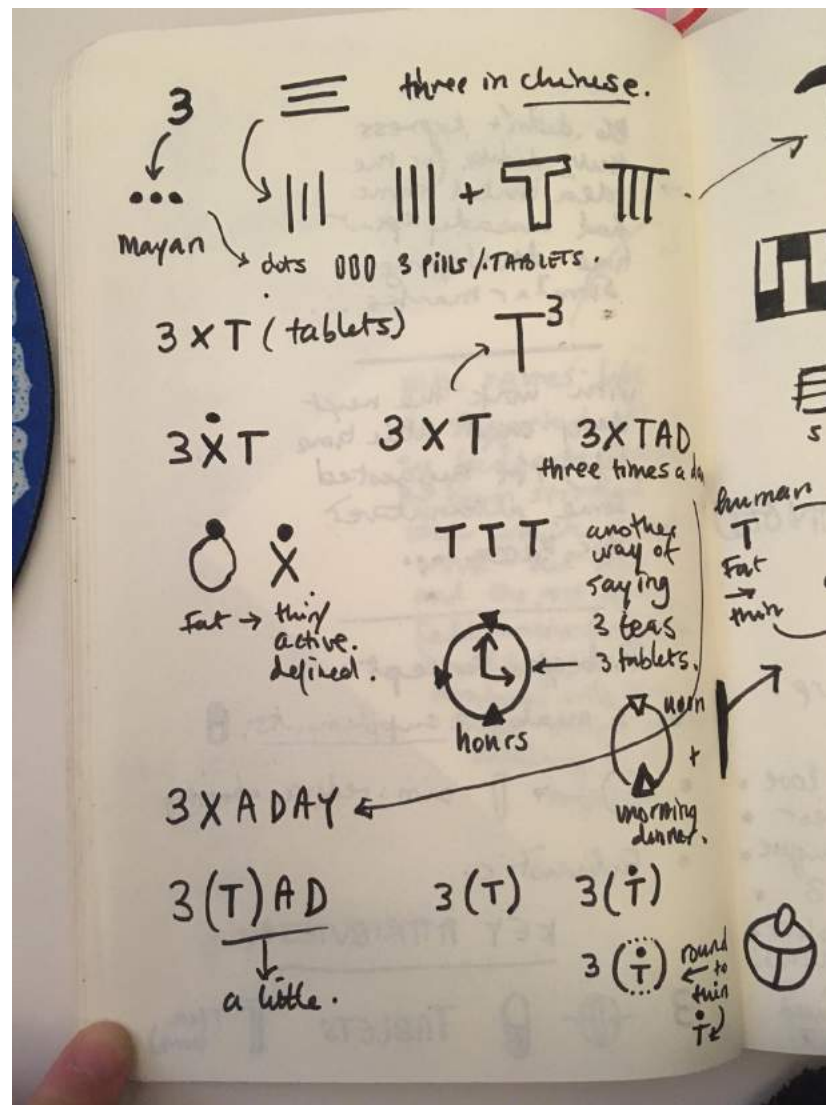
## Packaging

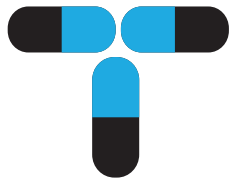
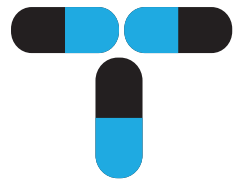
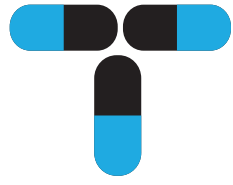
How are people going to buy this product? Would it be in a pill packet, in shops, restaurants? Similar to the delivery of a Graze box? This is a net template created to replicate a paracetamol box. The product is clinical and this packaging replicates and emphasises that.



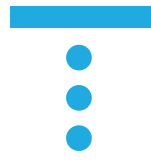
## Logo Feedback

When gaining feedback from peers over the weekend, it was discussed that 'B6' were worried about everyone's branding looking too similar. I was happy with my logo 'T3' and had already started developing my work incorporating this. Collaborating with Catalina Walker, we looked at some other logo options which may link more distinctly to my project. Two sketchbook pages below are from the ideas Cat sent me, on the next page you will also find some of these which she mocked up in illustrator for me.

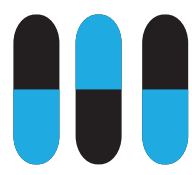




T T T



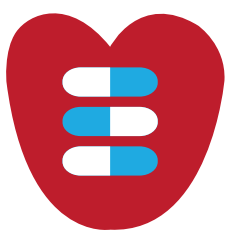
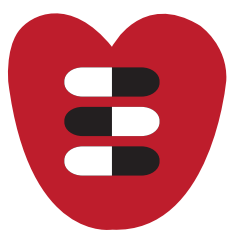
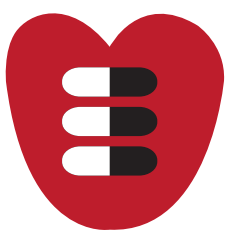
**TASTE**  
**TASTE**



3 ( )

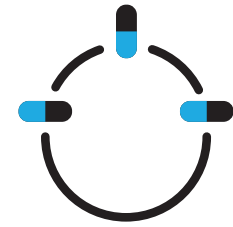
T<sup>3</sup>

3(i)

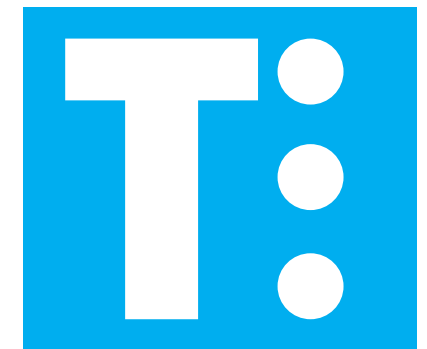
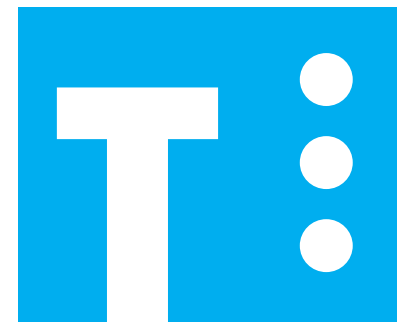
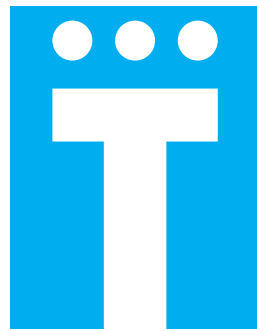
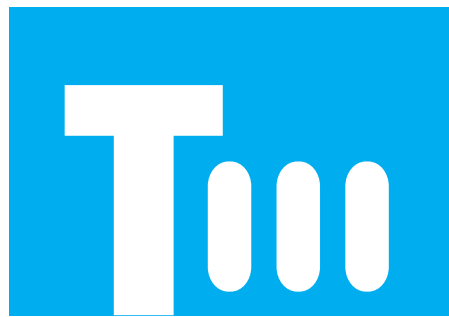
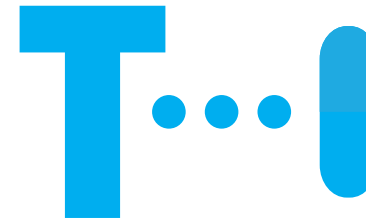


3XT

3XT



Catalina Walker sent me the original ai file, then I started to experiment a bit with some of the ideas. Find this experimentation on the next page.

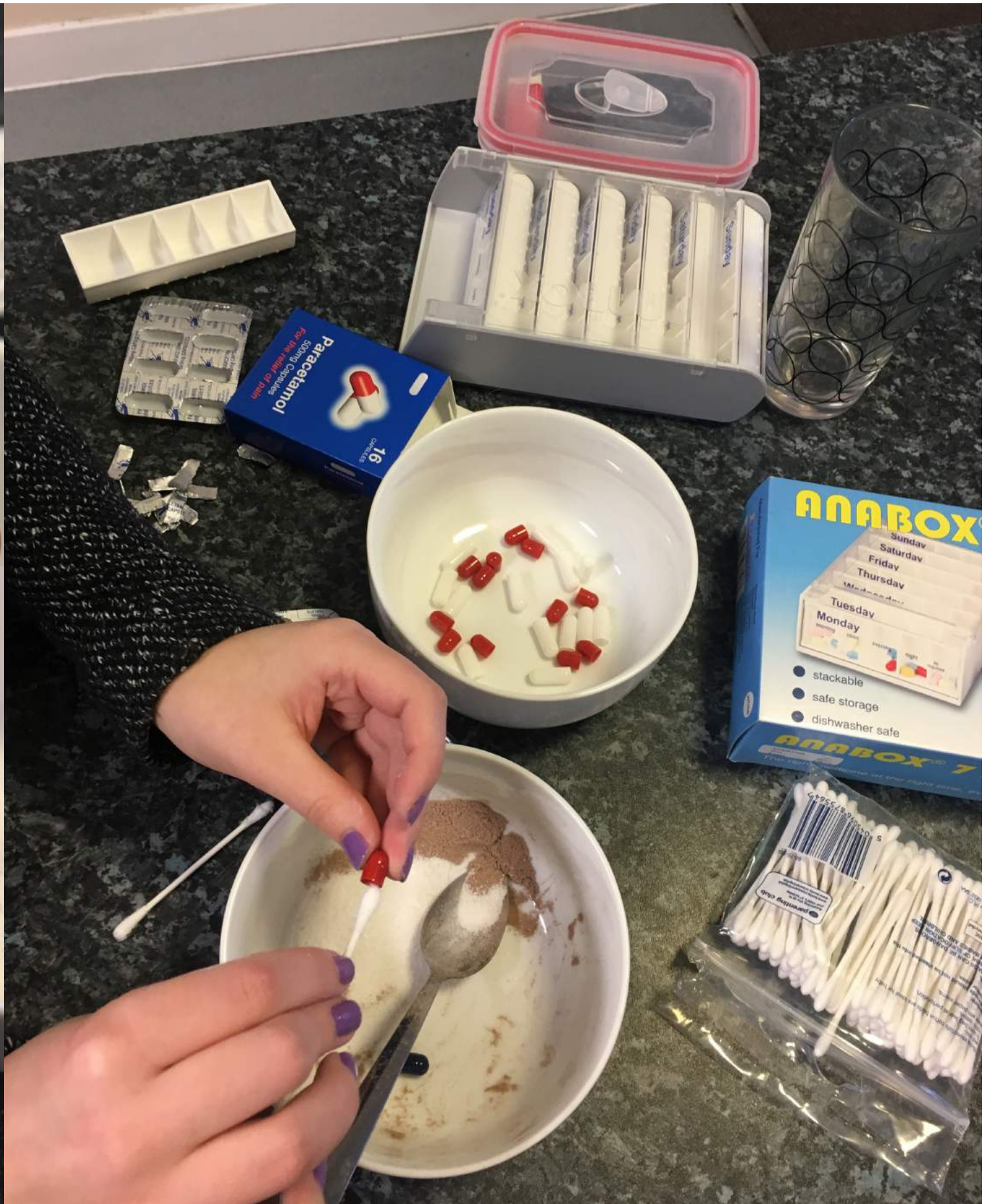
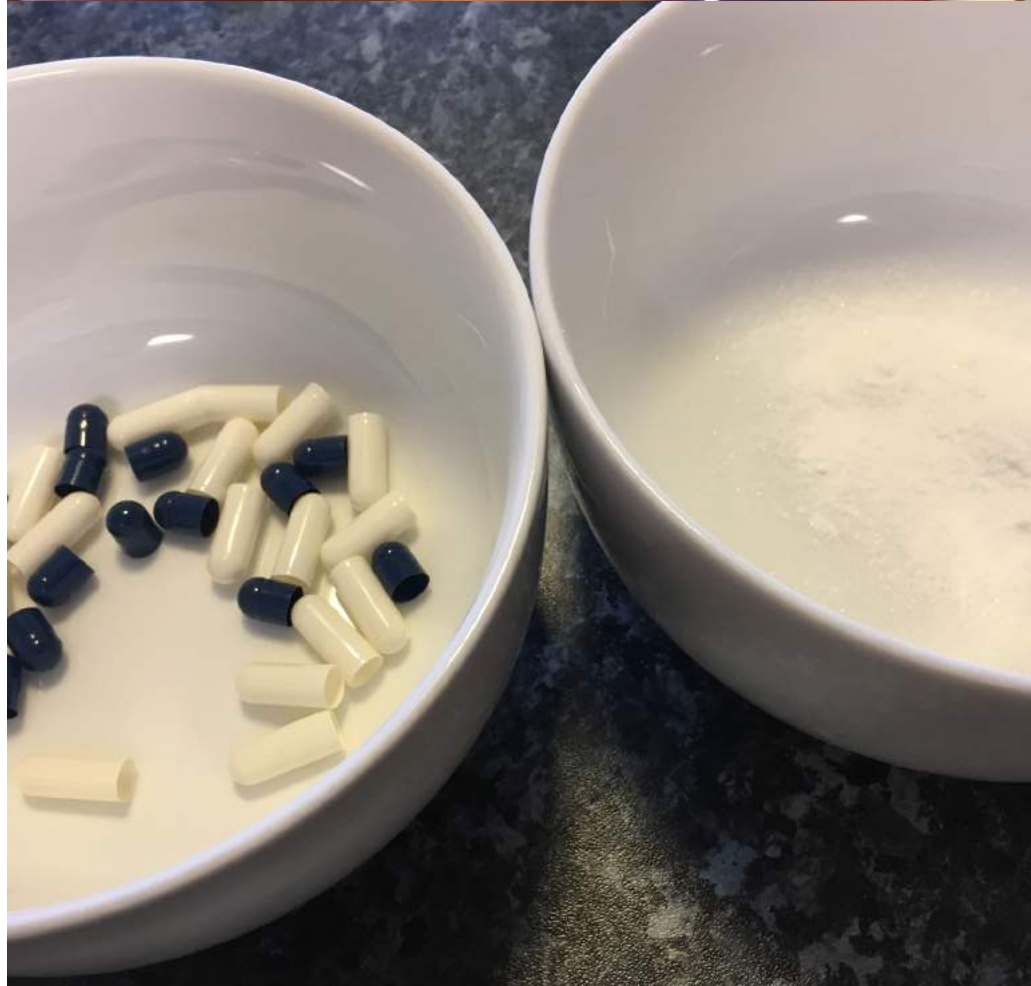


### Logo Development

Taking Cats ai file, experimentation on some of my preferred ideas began. You can see above they all have a similar theme, They are now trying to incorporate the tablet within the design, using 'T3' as the basis but looking at other ways to visual the 3 whilst still being able to understand and identify the brand.

The initial 'T3' logo is still my favourite, as it clearly expresses the brand in a simple yet efficient manner. However, if it is decided that the logo is too similar to 'B6', the bottom right on the above designs is also a valid logo option. I will await feedback on this before proceeding to develop the brand or incorporate it on to any more of the materials being made.

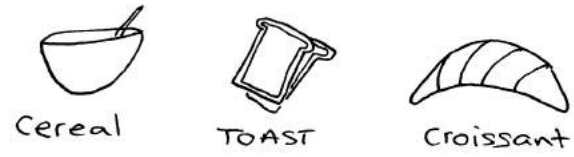




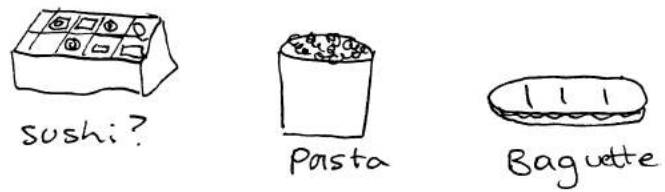


Food tablet icons

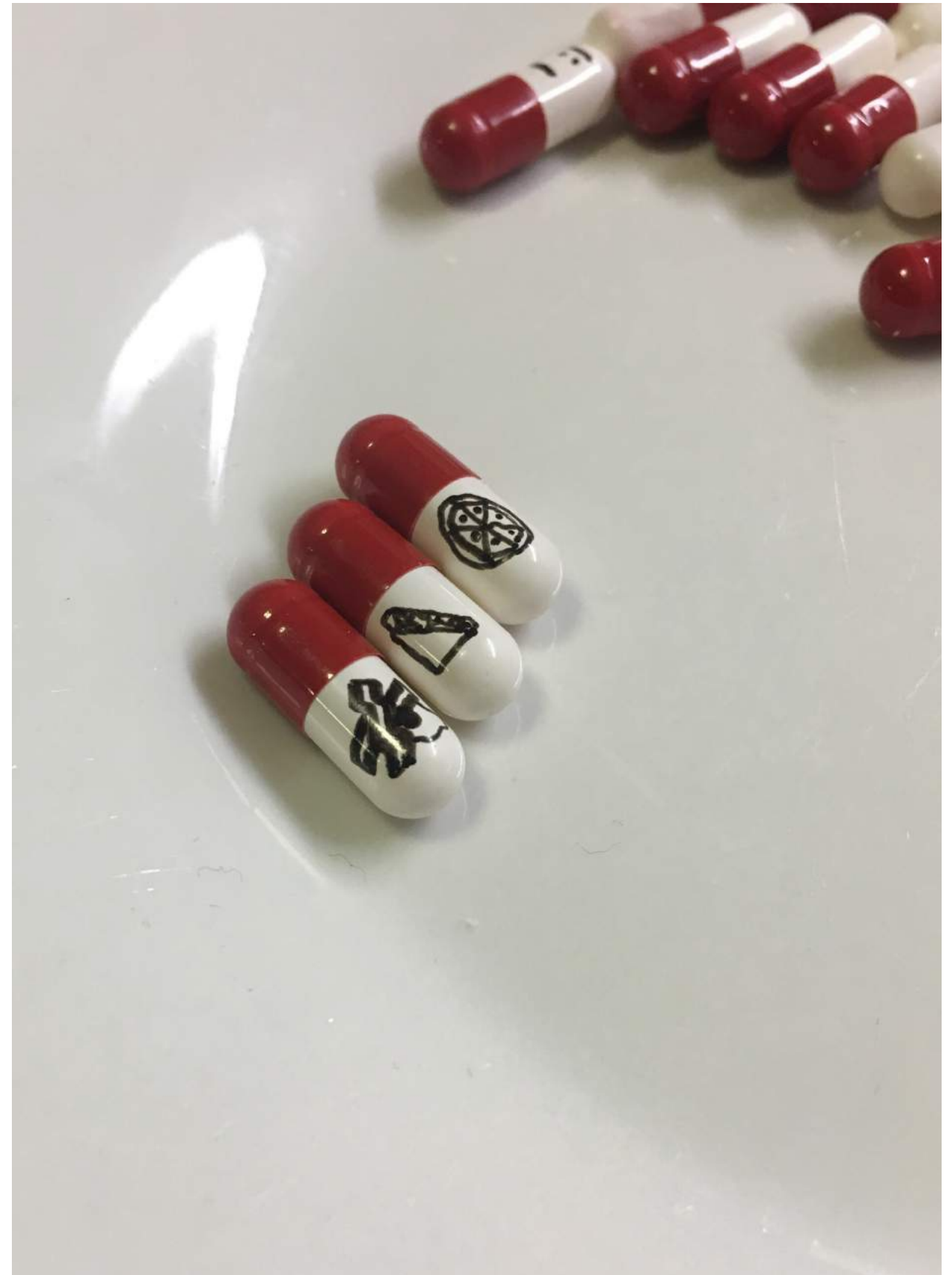
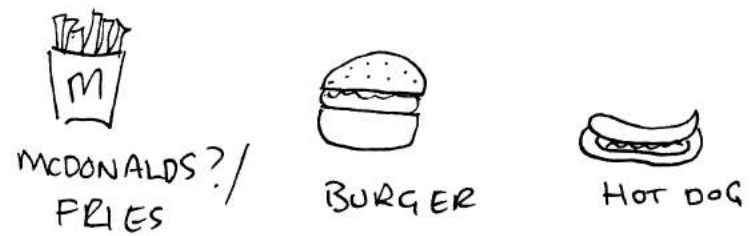
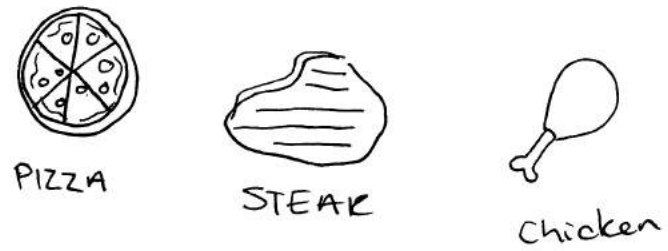
Breakfast:



Lunch:



Dinner:





### **Final Logo**

After much trial and error with the logo, the 'B6' team took all of my development and looked at cleaning up the ideas to create one final logo that represented the project in its truest form. This logo is simple yet effective, taking the concept of meals being replaced by three tablets a day. Incorporating the two tablet colours of red and blue for female and male consumption respectively due to different calorie intake. You can see over the next few pages how this has been implemented into my material, moving away from the 'T3' logo, which we felt was too similar to 'B6'. This logo is more unique and individual, whilst fitting in with the exhibitions clinical and potentially futuristic feel.



## Original Ingredient Information

\* Information for T3 Blue (calorie intake more specific for female consumption).  
\* See our other products for products relevant to children and males.

**Ingredients:** Pea Protein, Flaxseeds, Brown Rice Protein, Protein Blend (Whey (Milk) Protein Concentrate (WPC80), Hydrolysed Whey (Milk) Protein, Whey (Milk) Protein Isolate, Soya Protein, Emulsifier (Soya Lecithin), Maltodextrin, Sweetener (Sucralose), Starch, Vanilla Flavouring (Sulphites) Lactoperoxidase (Milk), MCT Powder (from Coconut), Sunflower Oil Powder, Micronutrient Blend\*.

\* Potassium Chloride, Coconut Flour, Calcium Carbonate, Vitamin C, L-Choline Bitartrate, Lutein, Plant-Based Vitamin D3, Lycopene, Vitamin E (as D-Alpha Tocopheryl Acetate), Niacin (as Niacinamide), Vitamin K2 (as MK-7), Vitamin A (as Retinol Acetate), Vitamin D2, Pantothenic Acid (as Calcium DPantothenate), Vitamin B6 (as Pyridoxine Hydrochloride), Riboflavin, Vitamin K1, Chromium Chloride, Potassium Iodide L-Methylfolate Calcium, Biotin, Vitamin B12 (as Cyanocobalamin).

**For Allergens - See ingredients in bold.**

**Guidance notice:** Women who are pregnant or nursing and children should consult our website.

**Storage:** Store in a cool, dry place. Do not open until time of consumption.

**The Best Before Date is printed to the bottom right of the packaging. Do not consume after this date.**



**Formulated and manufactured in the United Kingdom for:** T3 Limited, Aylesbury, Buckinghamshire, United Kingdom, HP19 8HL.

T3® is a trademark of T3 Limited.

### Nutrition Information

	Per 500mg Tablet
<b>Energy</b>	2928kJ 900kcal
<b>Fat</b>	13.2g
- of which saturates	2.4g
- of which monounsaturates	2.8g
- of which polyunsaturates	7.7g
<b>Carbohydrate</b>	36.7g
- of which sugars	1.0g
<b>Fibre</b>	7.9g
<b>Protein</b>	29.6g
<b>Salt</b>	0.5g

\*Reference of daily intake per 500mg tablet. Recommended daily intake of 3 tablets in a 24 hour period. May take up to two additional tablet depending on physical exhurtion with that period. Maxiumum 5 tablets in a 24 hour period.

### Vitamins, Minerals and Amino Acids

	Per 500mg Tablet
Vitamin E (mg)	2.4
Vitamin C (mg)	60
Thiamin (mg)	0.3
Riboflavin (mg)	0.3
Vitamin B6 (mg)	0.3
Pantothenic Acid (mg)	1.2
Potassium (mg)	699
Chloride (mg)	360
Calcium (mg)	200
Magnesium (mg)	22
Iron (mg)	7.8
Zinc (mg)	4.0
Choline (mg)	110
Lycopene (mg)	1.0
Lutein (mg)	1.2
Omega 3 (g)	3.1
MCTs (g)	1.2
Trans Fat (g)	<0.1



## Original Ingredient Information

\* Information for T3 Red (calorie intake more specific for female consumption).  
\* See our other products for products relevant to children and males.

**Ingredients:** Pea Protein, Flaxseeds, Brown Rice Protein, Protein Blend (Whey (Milk) Protein Concentrate (WPC80), Hydrolysed Whey (Milk) Protein, Whey (Milk) Protein Isolate, Soya Protein, Emulsifier (Soya Lecithin), Maltodextrin, Sweetener (Sucralose), Starch, Vanilla Flavouring (Sulphites) Lactoperoxidase (Milk), MCT Powder (from Coconut), Sunflower Oil Powder, Micronutrient Blend\*.

\* Potassium Chloride, Coconut Flour, Calcium Carbonate, Vitamin C, L-Choline Bitartrate, Lutein, Plant-Based Vitamin D3, Lycopene, Vitamin E (as D-Alpha Tocopheryl Acetate), Niacin (as Niacinamide), Vitamin K2 (as MK-7), Vitamin A (as Retinol Acetate), Vitamin D2, Pantothenic Acid (as Calcium DPantothenate), Vitamin B6 (as Pyridoxine Hydrochloride), Riboflavin, Vitamin K1, Chromium Chloride, Potassium Iodide L-Methylfolate Calcium, Biotin, Vitamin B12 (as Cyanocobalamin).

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	Per 500mg Tablet
<b>Energy</b>	2928kJ 700kcal
<b>Fat</b>	13.2g
- of which saturates	2.4g
- of which monounsaturates	2.8g
- of which polyunsaturates	7.7g
<b>Carbohydrate</b>	36.7g
- of which sugars	1.0g
<b>Fibre</b>	7.9g
<b>Protein</b>	29.6g
<b>Salt</b>	0.5g

\*Reference of daily intake per 500mg tablet. Recommended daily intake of 3 tablets in a 24 hour period. May take up to two additional tablet depending on physical exhurtion with that period. Maxiumum 5 tablets in a 24 hour period.

### Vitamins, Minerals and Amino Acids

	Per 500mg Tablet
Vitamin E (mg)	2.4
Vitamin C (mg)	60
Thiamin (mg)	0.3
Riboflavin (mg)	0.3
Vitamin B6 (mg)	0.3
Pantothenic Acid (mg)	1.2
Potassium (mg)	699
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Calcium (mg)	200
Magnesium (mg)	22
Iron (mg)	7.8
Zinc (mg)	4.0
Choline (mg)	110
Lycopene (mg)	1.0
Lutein (mg)	1.2
Omega 3 (g)	3.1
MCTs (g)	1.2
Trans Fat (g)	<0.1



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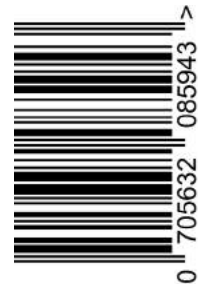
500mg Tablets

104346/5  
222831



500mg Tablets

24 Tablets



Marketing Authorisation  
Holder: T3 Ltd, Aylesbury,  
Buckinghamshire, United  
Kingdom, HP19 8HL,  
PL 29831/0159

**Read the enclosed leaflet before consumption for full list  
of ingredients and nutritional information**

**DAILY INTAKE**

T3 has a recommended daily intake of 3 tablets in a 24 hour period. Each tablet will ensure you feel full for approximately 4-6 hours. You may take up to two additional tablet depending on physical exertion with that period. Do not exceed a maximum of 5 tablets in a 24 hour period.

**CALORIE INFORMATION**

T3 Blue has a calorie intake of 900 per tablet reaching the recommended 2600 for males with 3 tablets. Please see our website for full information on child and female tablets.

**DIRECTIONS**

When taking the tablet, ensure you drink with a minimum of 125ml of water. You can take T3 tablets at any time during the day. Ensure you stay hydrating whilst taking the tablets, drinking a minimum of six to eight glasses of water daily.

**INGREDIENTS**

Pea Protein, Flaxseeds, Brown Rice Protein, Protein Blend (Whey (Milk) Protein Concentrate (WPC80), Hydrolysed Whey (Milk) Protein, Whey (Milk) Protein Isolate, Soya Protein, Emulsifier (Soya Lecithin), Maltodextrin, Sweetener (Sucralose), Starch, Vanilla Flavouring (Sulphites) Lactoperoxidase (Milk), MCT Powder (from Coconut), Sunflower Oil Powder, Micronutrient Blend\*.

\* Potassium Chloride, Coconut Flour, Calcium Carbonate, Vitamin C, L-Choline Bitartrate, Lutein, Plant-Based Vitamin D3, Lycopene, Vitamin E (as D-Alpha Tocopheryl Acetate), Niacin (as Niacinamide), Vitamin K2 (as MK-7), Vitamin A (as Retinol Acetate), Vitamin D2, Pantothenic Acid (as Calcium D-Pantothenate), Vitamin B6 (as Pyridoxine Hydrochloride), Riboflavin, Vitamin K1, Chromium Chloride, Potassium Iodide L-Methylfolate Calcium, Biotin, Vitamin B12 (as Cyanocobalamin).



500mg Tablets



24 Tablets

GTIN: 15012727905805  
SN: VYIJ4P5CAL2



BATCH: XS10864  
MAN: JAN 2018  
EXP: SEP 2020  
DD/T3/DD/61



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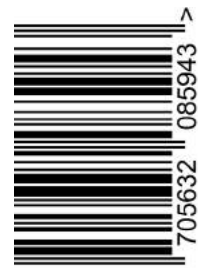
500mg Tablets

104346/5  
222831



500mg Tablets

24 Tablets



0 705632 085943

Marketing Authorisation  
Holder: T3 Ltd, Aylesbury,  
Buckinghamshire, United  
Kingdom, HP19 8HL,  
PL 29831/0159

**Read the enclosed leaflet before consumption for full list  
of ingredients and nutritional information**

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T3 has a recommended daily intake of 3 tablets in a 24 hour period. Each tablet will ensure you feel full for approximately 4-6 hours. You may take up to two additional tablet depending on physical exertion with that period. Do not exceed a maximum of 5 tablets in a 24 hour period.

**CALORIE INFORMATION**

T3 Red has a calorie intake of 700 per tablet reaching the recommended 2100 for females with 3 tablets. Please see our website for full information on child and male tablets.

**DIRECTIONS**

When taking the tablet, ensure you drink with a minimum of 125ml of water. You can take T3 tablets at any time during the day. Ensure you stay hydrating whilst taking the tablets, drinking a minimum of six to eight glasses of water daily.

**INGREDIENTS**

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\* Potassium Chloride, Coconut Flour, Calcium Carbonate, Vitamin C, L-Choline Bitartrate, Lutein, Plant-Based Vitamin D3, Lycopene, Vitamin E (as D-Alpha Tocopheryl Acetate), Niacin (as Niacinamide), Vitamin K2 (as MK-7), Vitamin A (as Retinol Acetate), Vitamin D2, Pantothenic Acid (as Calcium D-pantothenate), Vitamin B6 (as Pyridoxine Hydrochloride), Riboflavin, Vitamin K1, Chromium Chloride, Potassium Iodide L-Methylfolate Calcium, Biotin, Vitamin B12 (as Cyanocobalamin).



500mg Tablets



24 Tablets

GTIN: 15012727905805  
SN: VYIJ4P5CAL2



BATCH: XS10864  
MAN: JAN 2018  
EXP: SEP 2020  
DD/T3/DD/61

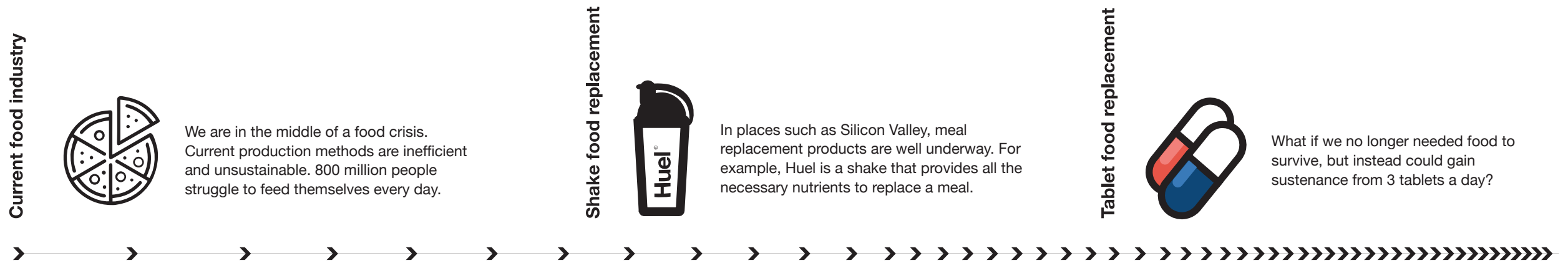
1871



## Responding to Feedback

On Monday 5th Feb, a discussion was had around my project with Jo. We were having a conversation around my infographic. The infographic was mentioned last week in order to supply the audience with some immediate context around the project. I wanted to portray this as an 'Evolution of Food'. We discussed the best way to achieve this, was it an infographic or a timeline? What was the best method of showing development and progression in the industry? Was it the suggestive language? The slant of text as if it's in motion or the use of arrows pointing forward?

From this conversation, I developed the below and am happy with the final product. All elements were carefully considered on how to portray this development and 'bio-hacking' of food. Could these tablets eventually be a common thing within the food industry and will it lead to faster development in the future.



## THE EVOLUTION OF FOOD

## **Final Text**

This is the final text that was printed and presented with my project at the exhibition.

### **What if we no longer needed food to survive but instead could gain sustenance from 3 tablets a day?**

*Becca Johnstone*

Scarcity: We are in the middle of a food crisis. Current production methods are inefficient and unsustainable. 800 million people struggle to feed themselves every day. With an estimated population projection of 9.8 billion by 2050, could a tablet containing lab-grown proteins be the solution to agricultural demands?

All the necessary nutrients are provided within these tablets. Would one truck load be able to feed an entire country affected by war and famine?

Health: We as a society are living unhealthy lifestyles and getting fatter. Current estimates show that by 2050 more than half the population would be obese, could this tablet provide the solution?

Context: In Silicon Valley, meal replacement products are well underway, is this tablet the future of food? What would happen to our fine dining and fast food industry? Would this be the end of our social dining culture?

Object: The red tablets are recommended for female consumption providing 700 calories each. The blue tablets are recommended for male consumption providing 800 calories each. Each tablet is packed with the necessary nutrients. vitamins, fats, protein and carbohydrates. The tablets will provide enough sustenance for approximately 4-6 hours depending on the range of activities conducted within that time period.

## **Reflection and Evaluation**

This project has taught me a lot about time management, collaboration and exhibiting. Being able to produce such a large body of work, including research and a final exhibition piece, to a high standard in just over three weeks.

There were challenges along the way, mainly involving the branding and collaboration. However, these were eventually resolved resulting in a final outcome that portrayed the brand clearly.

Being able to exhibit in Somerset House was an incredible experience, allowing us the opportunity to showcase this project within a real-world context. The project aim was to spark social debate and on the night this proved to do just that. There were a number of different opinions and discussions which came up from the night, some based around things I had considered within my research and others which made me pause and think.

If I had to approach the project differently, I would research more into the science behind the tablets and if they could actually be made. This is because a lot of the discussion on the night was hard to keep up with. Many people thought the tablets actually contained the 700/900 calories. However, as a conceptual project to spark social debate, it did the job well. The tablets were the main focus on the evening, discussing what would actually be in them, if they were vegan and the questions proposed around the project.

The event was hosted over two nights on Thursday 8th and Friday 9th February. Unfortunately I could only attend the Thursday evening. Each evening was hosted by Makerversity and involved a number of speakers around bio-hacking of food and the human body. The talks from Thursday were very interesting, touching upon a number of things I had looked at within my research. Over the next few pages you can see a number of photos and social media posts from the exhibition.













**Minerals, Minerals and Amino Acids**

Per 100g Total

Calcium (mg)	110
Phosphorus (mg)	4.0
Magnesium (mg)	1.2
Sodium (mg)	1.2
Potassium (mg)	3.1
Iron (mg)	1.2
Zinc (mg)	1.2
Copper (mg)	0.1
Manganese (mg)	0.1
Selenium (mg)	0.1
Choline (mg)	0.1
Lycopene (mg)	0.1
Lutein (mg)	0.1
Omega 3 (g)	0.1
MCTs (g)	0.1
Total Fat (g)	0.1



**Ingredients**  
 Brown Rice  
 (Whey (Milk Protein), Soy Protein, Lecithin), Maltitol (Sucralose), Stabilisers (Lactoperoxidase (Powder (from Cocoa Oil Powder, Micronutrients

\*Potassium Chloride, Coconut Carbonate, Vitamin C, L-Choline Lutein, Plant-Based Vitamin D3, Vitamin E (as D-Alpha Tocopheryl Acetate), Niacin (as Nicotinamide), Vitamin A (as Retinol Acetate), Vitamin K2 (as Menaquinone-7), Vitamin B1 (as Thiamine Hydrochloride), Vitamin B6 (as Pyridoxine Hydrochloride), Riboflavin, Vitamin K1, Chromium Chloride, Potassium Iodide L-Methylcysteine Calcium, Vitamin B12 (as Cyanocobalamin).

**For Allergens - See ingredients in bold.**

**Guidance notice:** Women who are pregnant or nursing and children should consult our website.

**Storage:** Store in a cool, dry place. Do not open until time of consumption.

**The Best Before Date is printed to the bottom right of the packaging. Do not consume after this date.**



Formulated and manufactured by Huel Ltd, United Kingdom. For: Huel Ltd, 100, The Quadrant, Basingstoke, Hampshire, United Kingdom, RG24 0BA.

**Ingredients**  
 Vitamin B12 (as Cyanocobalamin), Calcium Chloride, Magnesium Oxide, Iron (mg), Zinc (mg), Lycopene (mg), Lutein (mg), Omega 3 (g), MCTs (g), Total Fat (g)

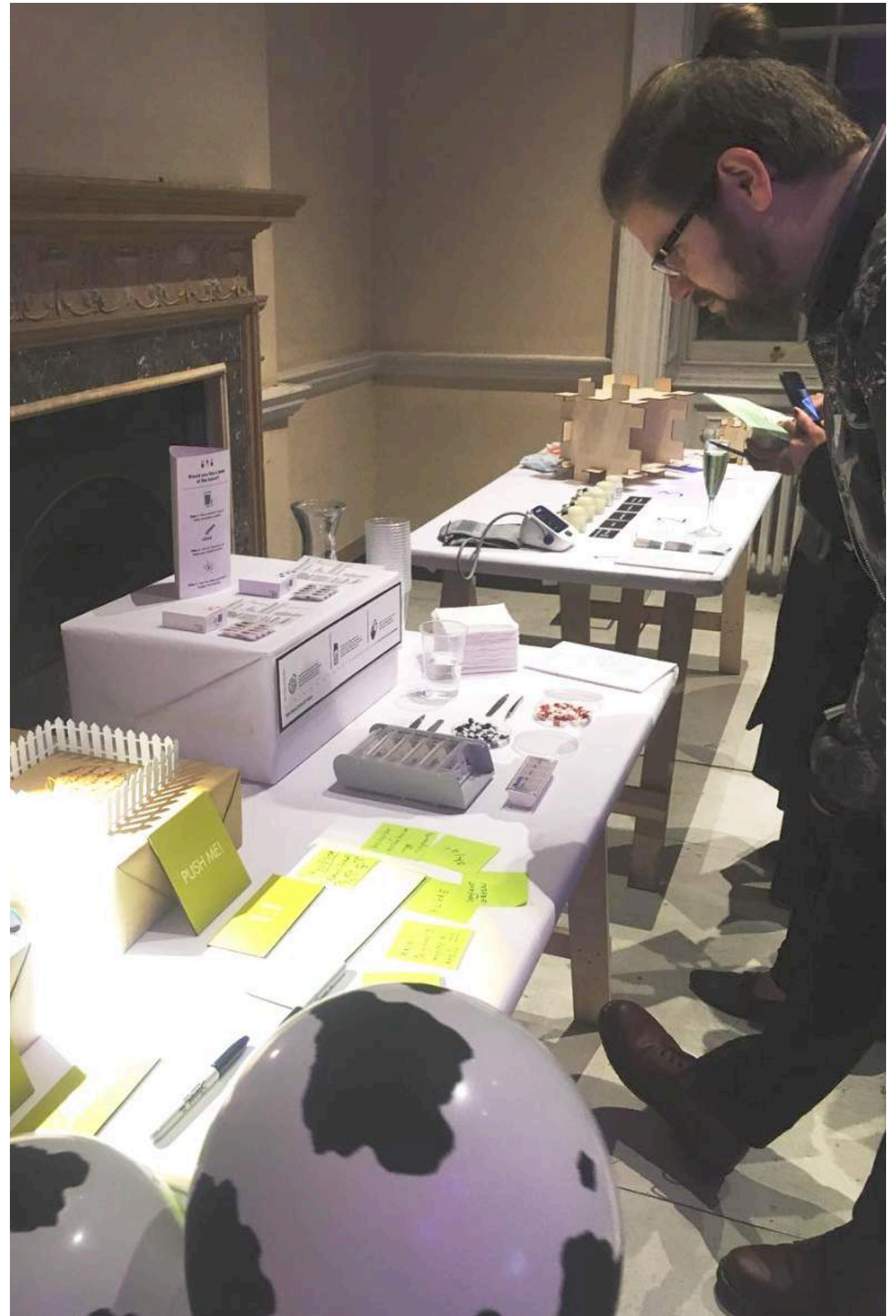
In places such as Silicon Valley replacement products are available. For example, Huel is a sh... necessary nutrient











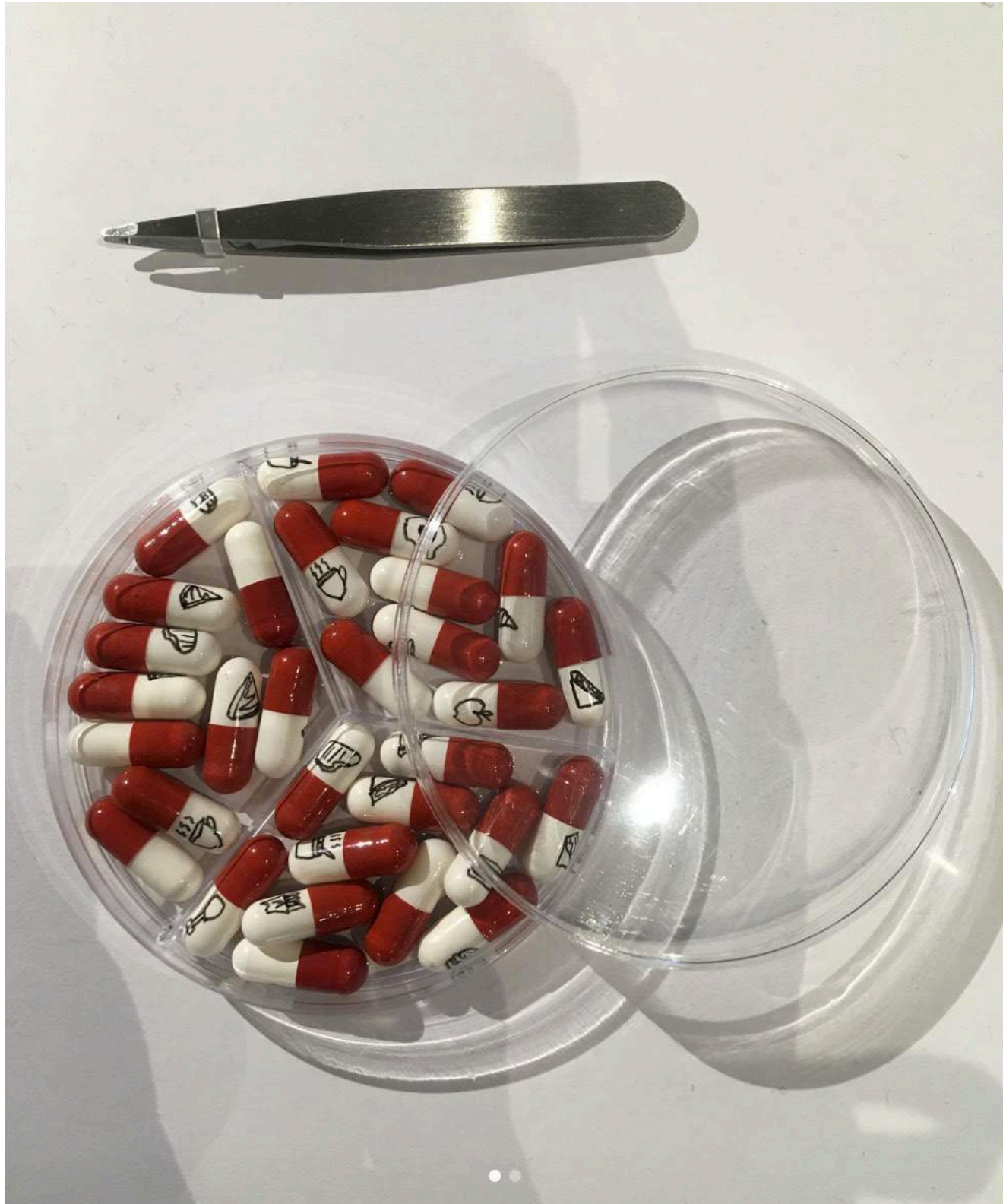












**makerversity** • Following

**makerversity** Would you like a taste of the future ? .

.  
.  
"What if we no longer needed food to survive but instead could gain sustenance from 3 tablets a day?" Project by Becca Johnstone

**edible\_stories** Intrigued for what's to come from this!

**tomtobia** @shu\_graphics



**36 likes**

1 DAY AGO

Add a comment...



erity 2 1080

# Makerversity is opening it's doors

▶ 🔊 0:03 / 0:47

Video File from event: <https://www.youtube.com/watch?v=Faal7cnWX0w&feature=youtu.be>





