

# IMMUNITY SUPPORT PACK

The main purpose of your immune system is to protect your body from viruses and bacteria.

Learn more about your immunity and protection.



# What is the Immune System

The immune system is a complex organ system in the body comprised of white blood cells, skin, mucus and bacteria. Its central role is to seek, recruit, attack and destroy foreign invaders, such as bacteria and viruses that enter the body. There are two main levels of immunity.

## 1. Innate immunity system

The first level is called the innate immune system. This system provides a quick first line of defence and acts against a wide range of pathogens. The innate immunity system refers to nonspecific defence mechanisms that come into play immediately or within hours of an antigen's appearance in the body. These mechanisms include physical barriers such as skin, chemicals in the blood, and immune system cells that attack foreign cells in the body. The chemical properties of the antigen activate the innate immune response.

## 2. Adaptive Immune System

The second main level of immunity is called the adaptive immune system. This level refers to antigen-specific immune response. The adaptive immune response is more complicated than innate. The antigen first must be processed and recognized. Once an antigen is identified, the adaptive immune system creates an army of immune cells specifically designed to attack that antigen. Adaptive immunity also includes a "memory" that makes future responses against a specific antigen more efficient.

### **Keywords explained:**

**Antigen** - Anything that causes an immune response is called an antigen. An antigen may be harmless, such as grass pollen, or harmful, such as the flu virus.

**Pathogen** - Disease-causing antigens are called pathogens. The immune system is designed to protect the body from pathogens.

# How to Support Your Immune System

The immune system is precisely that — a system, not a single entity. For it to function well, it requires balance and harmony. Researchers are still exploring the effects of diet, exercise, age, psychological stress, and other factors on the immune response.

In general, a healthy lifestyle is the single best step you can take toward naturally keeping your immune system strong and healthy. Every system in your body, including the immune system, functions better when following balanced and healthy strategies such as these:

- Eating a whole food diet with plenty of fruit and veg
- Exercising regularly
- Staying hydrated
- Maintaining a healthy weight
- Getting enough sleep
- Reducing stress
- Drinking alcohol in moderation
- Not smoking



# Diet & Your Immune System

There is some evidence that various micronutrient deficiencies (think vitamins and minerals) could alter immune responses. However, the impact of these immune system changes on health is less clear, and the effects are yet to be assessed.

So, if you suspect you may have micronutrient deficiencies, make sure you eat a varied diet with ample amounts of fruit and vegetables or support yourself with a good quality multivitamin.

(Read the information below to find out which are the best immunity boosting fruit and vegetables and how to incorporate them in your diet.)



# Vitamins, Minerals & Antioxidants for Your Immune System

## Vitamin D:

Research shows that vitamin D supplementation may reduce the risk for viral infections, including respiratory tract infections, by reducing the production of pro-inflammatory compounds in the body.

### *Supplementation:*

The body produces vitamin D from cholesterol, provided there is an adequate amount of UV light from sun exposure.

For moderate supplementation, a 1,000-2,000IU dose of vitamin D3 is sufficient to meet the needs of most of the population. The safe upper limit in the United States and Canada is 4,000IU/day.

## Vitamins C and E:

Vitamins C and E are antioxidants that help to destroy free radicals and support the body's natural immune response.

### Vitamin C Sources:

- red bell peppers
- oranges
- strawberries
- broccoli
- lemons

### Vitamin E sources:

- almonds
- spinach
- avocado
- olives



### ***Vitamin C Supplementation:***

Vitamin C is often supplemented to reduce the symptoms of the common cold. Supplementing vitamin C can reduce the duration of a cold by 8-14% in any population, when it is taken as a daily preventative measure, or at the beginning of a cold.

The Recommended Daily Intake (RDI) of vitamin C is 100-200mg. This is easily attained through the diet, so supplementation of such low doses is usually unnecessary. Higher doses of vitamin C, up to 2,000mg, are used to support the immune system (for athletes) or reduce the duration of the common cold.

### ***Vitamin E Supplementation:***

Maintaining adequate levels of vitamin E in the body can be achieved through very low daily doses of 15mg (22.4 IU) or less. This dose of vitamin E can be acquired through the diet, making supplementation unnecessary in many cases. An older person supplementing vitamin E to improve immunity should take a 50-200mg dose.

### **Beta-Carotene:**

Beta-carotene is a powerful antioxidant that can reduce inflammation and boost immune function by increasing disease-fighting cells in the body.

### **Sources:**

- sweet potatoes
- carrots
- green leafy vegetables

**Zinc:**

Zinc is a mineral that can help boost white blood cells, which defend against invaders.

**Sources:**

- pumpkin seeds
- sesame seeds
- beans
- lentils

***Supplementation:***

Zinc has two standard dosages. The low dosage is 5-10mg, while the high dosage is 25-45mg. The low dose works well as a daily preventative, while the high dosage should be taken by anyone at risk for a zinc deficiency.

**Allicin:**

Allicin is the principal bioactive compound present in the aqueous extract of garlic. When garlic is chopped or crushed, the alliinase enzyme is activated, and allicin is produced. When cooking with garlic, it is recommended to crush or chop it and leave for 10 mins for the enzyme to be activated.

The benefits of garlic to health has been proclaimed for centuries; however, only recently, it's been proposed as a promising candidate for maintaining a healthy immune system.

Most studies on garlic use a dosage range of 600-1,200mg a day, usually divided into multiple doses. The minimum effective dose for raw garlic is a single segment of a garlic bulb (called a clove), eaten with meals two or three times a day.

## **Astragalus:**

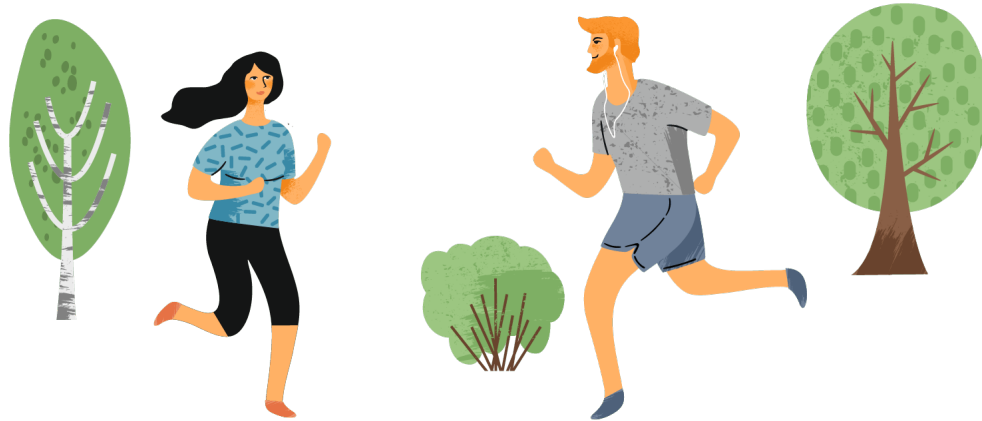
Astragalus membranaceus is an important herb in traditional Chinese medicine. It has been used in a wide variety of herbal blends and 'natural' remedies. This Chinese herb has been researched for its cardioprotective, anti-inflammatory, and longevity effects.

### ***Supplementation:***

Astragalus membranaceus and Angelicae Sinensis are highly synergistic, meaning they are more powerful when taken together. This combination is traditionally called Dang-gui buxue tang.

The starting point for the preparation of Dang-gui buxue tang in traditional Chinese medicine is 30g of Astragalus membranaceus root paired with 6g of Angelicae Sinensis. This is a 5:1 ratio, which is ideal for extracting the bioactive ingredients of the plants.

The main bioactive compound in Astragalus membranaceus is astragaloside IV, which can be supplemented by itself. The standard dose for astragaloside IV is 5-10mg.



# Recipes

People finally see the importance of their health, well-being and longevity. Here are some recipes to support your immune system.

[www.mattluxtonhealthandfitness.com](http://www.mattluxtonhealthandfitness.com)





**EGG BROCCOLI &  
HAM MUFFINS**

# EGG BROCCOLI & HAM MUFFINS



Makes: 6  
Prep: 5 mins  
Cook: 15 mins



## **Garlic:**

Garlic should be crushed or sliced, prior to cooking, in order to ensure maximum allicin production, since allicin is responsible for many of garlic's beneficial effects.

- ½ broccoli
- **1 clove garlic, minced**
- 5 eggs
- pinch of chilli flakes, optional
- 4 slices ham, chopped
- 1/3 cup (30g) grated cheese

Preheat the oven to 360F (180C).

Place the broccoli in a pot of boiling water and cook for approx. 3 minutes. Strain and cut into small pieces.

Beat the eggs in a medium size bowl, add the minced garlic and season with salt & pepper, and chilli flakes if using.

Grease a 6-mould muffin tray with oil or butter, and fill the moulds with evenly divided broccoli, ham, and grated cheese. Pour the beaten eggs into the moulds and bake in the oven for 10-15 mins, or until eggs have set.

**Vegetarian option:** replace the ham with feta cheese, Goats cheese or your favourite vegetables.



**SUPERFOOD BREAKFAST  
WITH FRIED EGG**

# SUPERFOOD BREAKFAST WITH FRIED EGG



Serves: 2  
Prep: 5 mins  
Cook: 15 mins



## **Broccoli:**

Broccoli is high in many vitamins and minerals, including folate, potassium, manganese, iron, and vitamins C and K1.

- **2 cups (300g) broccoli**
- 1 garlic clove, minced
- 2 tbsp. (20g) pumpkin seeds
- lemon juice
- 2 tbsp. coconut oil
- 1/4 onion, chopped
- 1 tbsp. (20g) dried cranberry
- 4 eggs

## **Spices:**

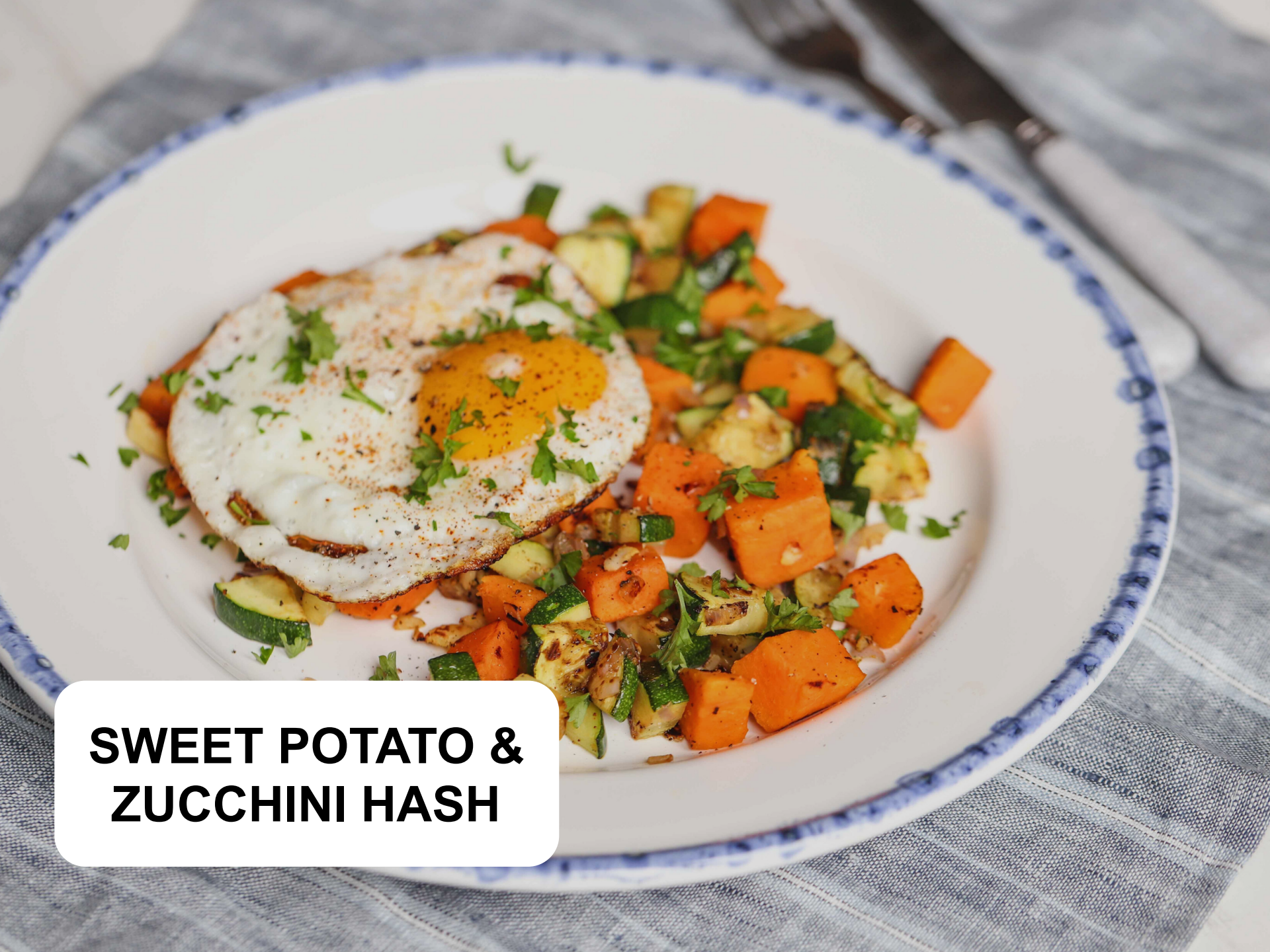
- 1/2 tsp. ground turmeric
- 1/2 tsp. chili flakes
- 1/2 tsp. paprika
- 1/2 tsp. oregano

Divide the broccoli into smaller parts and chop into tiny pieces or use a food processor to make broccoli rice.

Heat 1 tbsp. of oil in a pan on medium-high heat, add the minced garlic, chopped onion, pumpkin seeds and fry, stirring for about 5 minutes, until browned.

Next, add the cranberries, broccoli rice and all the spices, season with salt & pepper, mix and fry for another 5-7 minutes. If you need, add a little water to avoid burring. At the end of cooking drizzle with lemon juice.

In a separate frying pan heat the remaining 1 tbsp. of oil, and fry the eggs. Once ready serve on top of the broccoli rice, season with salt & pepper.



**SWEET POTATO &  
ZUCCHINI HASH**

# SWEET POTATO & ZUCCHINI HASH



Serves: 4

Prep: 5 mins

Cook: 15 mins



## **Sweet Potato:**

Sweet potatoes are an excellent source of beta-carotene, which can be converted to vitamin A and help support your immune system and gut health.

- **16 oz. (450g) sweet potato, peeled, cut into cubes**
- 2 glove garlic, chopped
- 1 ½ tbsp. coconut oil
- 2 medium zucchini, diced
- 1 onion, diced
- 8 eggs
- handful parsley, chopped
- cayenne pepper, to taste

Cook the sweet potato for 3-4 mins in a pot of boiling water, then drain.

Heat the ½ tbsp. of the oil in a pan, over medium heat. Add the sweet potato, zucchini, onion and garlic, sauté for about 5 mins, until cooked and browned. Season to taste with salt & pepper, and set aside.

Heat the remaining oil in the pan and fry the eggs to your liking.

Divide the vegetables between 4 plates, top with fried eggs and sprinkle with parsley. Season with cayenne pepper, salt & pepper, to taste and serve.

A top-down view of a bowl of vibrant yellow vegetable curry soup. The soup is garnished with fresh green cilantro leaves, small red chili flakes, and a central swirl of white cream. The bowl has a dark blue, speckled rim. The bowl sits on a light-colored, textured cloth with dark stripes. A wooden spoon is visible in the upper right corner, and a single red chili pepper lies on the cloth in the lower right corner.

# VEGETABLE CURRY SOUP

# VEGETABLE CURRY SOUP



Serves: 3  
Prep: 15 mins  
Cook: 20 mins



## **Carrots:**

Carrots are very high in beta carotene. The absorption is better (up to 6.5-fold) if the carrots are cooked.

- 2 garlic cloves, minced
- **1 carrot, peeled, grated**
- 1 red bell pepper, chopped
- 1 tbsp. coconut oil
- 1 medium onion, diced
- 1 ½ tbsp. ginger, minced
- 1 large zucchini, chopped
- 1 tbsp. curry powder (or more to taste)
- 2 cups (500ml) chicken or vegetable broth
- 1 tomato, chopped
- 1/3 cup (80ml) plant-based cream (or normal)

In a large pot, heat oil and sauté the onion. Add the minced ginger and garlic then continue for 2-3 more minutes.

Next, add the peeled and grated carrot and sauté for about 2 minutes, stirring occasionally. Add the chopped peppers and zucchini. Cook the vegetables for about 5 minutes, season with curry powder and mix well.

Next, pour in the broth and bring to a boil. Cook covered for about 10 minutes until the vegetables are soft. In the meantime, add the chopped tomatoes. Season with salt.

Once vegetables are cooked, take off from heat and blend using a hand blender. Add in the cream, season for taste, mix well and serve.

A top-down view of a white ceramic bowl filled with a colorful low-carb turkey salad. The salad consists of shredded turkey, sliced purple cabbage, red bell pepper strips, green onions, and fresh green herbs. The bowl is decorated with a pattern of orange and yellow splashes. In the background, a wooden spoon and a brown paper napkin are visible on a light-colored wooden surface.

**LOW CARB  
TURKEY SALAD**

# LOW CARB TURKEY SALAD



Serves: 5  
Prep: 25 mins  
Cook: 0 mins



## **Sesame seeds:**

Sesame seeds are a good source of several nutrients crucial for your immune system, including zinc, selenium, copper, iron, vitamin B6, and vitamin E.

Keep in mind that even mild to moderate zinc deficiency can impair immune system activity.

## *For the salad:*

- 1 red bell pepper, finely sliced
- 1 large carrot, grated
- **3 tbsp. toasted sesame seeds**
- 1lb. (450g) cooked turkey breast sliced
- 1 cup (70g) white cabbage, shredded
- 1 cup (70g) red cabbage, shredded
- 6 radishes, finely sliced
- 1 cup (100g) bean sprouts
- 3 green onions, finely sliced
- 4 tbsp. coriander, chopped
- 1/3 cup (30g) almonds, chopped

## *For the dressing:*

- ¼ cup (60 ml) lemon juice
- 1 garlic clove, minced
- 1/4 cup (60 ml) tahini
- 1/4 cup (60 ml) water
- 1 tbsp. honey

Prep all the vegetables, wash and peel where necessary. Shred the cabbage, slice the turkey, peppers, radishes and onions, grate the carrot. Chop the coriander and almonds.

Place all salad ingredients in a large bowl and mix well to combine.

Make the salad dressing by blending all the dressing ingredients together until creamy.

Pour the salad dressing over the salad and toss to cover. Serve straight away or store in the fridge until required.



**ROASTED ROOT VEG  
SALAD WITH FETA**

# ROASTED ROOT VEG SALAD WITH FETA



Serves: 4  
Prep: 10 mins  
Cook: 30 mins



## ***Pumpkin seeds:***

Pumpkin seeds are full of antioxidants that may help protect against disease and reduce inflammation.

- 2 medium carrots, peeled
- **¼ cup (30g) pumpkin seeds**
- 2 medium parsnips, peeled
- 1 lb. (450g) pumpkin, peeled
- 2 tbsp. olive oil
- 4 oz. (120g) rocket
- 2 oz. (50g) feta

Pre-heat the oven to 400F (200C).

Wash and peel the carrots and parsnips. Cut them into small strips. Peel and cube the pumpkin.

Place all the vegetables into a roasting tray, and grease evenly with 1 tbsp. of olive oil. Season with salt and pepper, and roast in the oven for 20-30 mins (depending on the thickness of the vegetables).

Once cooked add the roasted vegetables and rocket to a large bowl and drizzle with the remaining 1 tbsp. of olive oil.

Sprinkle with crumbled feta cheese and pumpkin seeds, and season with salt and pepper to serve.

## **Protein Boost Tip:**

- Serve with grilled chicken breast or thighs



**VEGAN SPINACH STEW**

# VEGAN SPINACH STEW



Serves: 4  
Prep: 5 mins  
Cook: 20 mins



## **Spinach:**

Spinach is an extremely nutrient-rich vegetable. It packs high amounts of carotenoids, vitamin C, vitamin K, folic acid, iron, and calcium.

## **Lentils:**

they're packed with B vitamins, magnesium, zinc and potassium.

- **14 oz. (400g) spinach, fresh**
- **2 cups (400g) lentils, can, drained**
- 2 cloves garlic, chopped
- 2 tbsp. tahini
- 1 tbsp. coconut oil
- 1 ½ cup (300g) chickpeas, can, drained
- ½ cup (15g) parsley, chopped
- ½ cup (15g) basil, chopped
- 1 onion, chopped
- 1 tsp. ground coriander
- 1 tsp. ground cumin
- 2 cups (500ml) vegetable stock

Heat a large pot over medium heat, add the spinach with a splash of water and cook until wilted. Remove from pan and allow to cool.

In the same pot heat the coconut and cook the onion and garlic until frequent and soft.

Add the cumin and coriander powder and mix well, fry together with the onion for another 2 minutes.

Next, add the lentils and pour in the stock. Bring to a boil, reduce the heat and simmer for 10 minutes covered.

Put the spinach together with the parsley and basil in a high-speed blender or food processor and mix until smooth. Stir in the tahini and season with salt and pepper.

Add the spinach mixture and chickpeas to the lentils and warm through to serve.



**EGG & TURKEY  
STUFFED PEPPERS**

# EGG & TURKEY STUFFED PEPPERS



Serves: 4  
Prep: 5 mins  
Cook: 20 mins



## **Red Bell Peppers:**

One medium-sized red bell pepper provides 169% of the Reference Daily Intake (RDI) for vitamin C, making it one of the richest dietary sources of this essential nutrient.

- 2 cups (60g) spinach, chopped
- **4 red medium bell peppers**
- 4 eggs
- 4 egg whites
- 2 tbsp. almond milk
- 1 tsp. coconut oil
- 1 small onion, chopped
- 1 lb (450g) lean ground turkey
- 2 tsp. oregano
- 1 tsp. cumin
- ½ cup (50g) cheese (dairy or plant-based)
- parsley, chopped to serve

Heat oven to 400F (200C).

Beat the eggs, egg whites and milk, then set aside.

Heat the coconut oil in a pan over medium heat. Add the onion and cook for 3 mins until softened and browned.

Add in the turkey, oregano and cumin, season with salt and pepper. Cook until meat is cooked through, about 5 mins. Then add the spinach, and mix until it wilts about 2 mins.

Increase the heat and add in the eggs. Pull the eggs across the skillet with a spatula. Repeat for about 3 mins until eggs are cooked. Then set aside.

Cut the peppers horizontally and remove the seeds, then stuff with the scrambled eggs and turkey.

Place the peppers in a baking dish and sprinkle them with grated cheese.

Bake in the oven for 15 mins, until cheese, has melted and the edges have browned.

To serve sprinkle with chopped parsley.



**CHICKEN ORANGE STIR FRY**

# CHICKEN ORANGE STIR FRY



Serves: 4  
Prep: 10 mins  
Cook: 25 mins



## **Orange:**

Oranges are an excellent source of vitamin C. One large orange provides over 100% of the RDI.

## *For the Sauce:*

- **1 orange, juice only**
- 1/3 cup (100g) marmalade (low sugar)
- ¼ cup (60ml) soy sauce
- 1 tsp. siracha (or as needed)
- 1 tbsp. buckwheat flour

## *For the Stir Fry:*

- 1 tbsp. garlic, minced
- 1 red bell pepper, chopped
- ½ cup (25g) carrot, grated
- 1 tbsp. sesame seeds
- **1 tsp. orange zest**
- 1 tbsp. coconut oil
- 1 lb. (450g) chicken breast, chopped
- 3 springs green onion, chopped
- 1 cup (150g) snap or mangetout peas
- 3 cups (450g) cooked brown rice

Mix all the sauce ingredients together. Add some water if necessary to thin it down slightly.

Cook rice according to instructions on packaging or use leftover rice.

Heat the coconut oil in a large pan over high heat. Add in the chicken breasts and cook for 4-5 mins until chicken is cooked through. Remove from the pan and set aside.

Lower the heat and add the garlic and green onion cooking for 1 min. Keep string to prevent burning.

Now add the mangetout peas and bell pepper and cook for another 3-4 mins. Add in cooked rice and mix well with the vegetables.

Next add in the cooked chicken, grated carrot and earlier made sauce. Stir well until heated.

Garnish with sesame seeds and more green onion to serve.

A photograph of two glass bottles filled with a clear, yellowish chicken broth. The bottles are placed on a white and grey striped cloth. In the foreground, a sprig of fresh green thyme is visible. The background is a plain, light-colored surface.

**IMMUNITY BOOSTER  
CHICKEN BROTH**

# IMMUNITY BOOSTER CHICKEN BROTH



Serves: 4  
Prep: 20 mins  
Cook: 2 hrs



## **Garlic:**

Garlic is rich in vitamin C, vitamin B6 and manganese.

- **4 garlic cloves**
- 1 carrot
- 4.7 inch (12cm) ginger
- 1½ tsp. ground turmeric
- 1 onion
- 2 leeks
- 4 stalks of celery
- 2 stalks lemon grass
- 1 tsp. black peppercorns
- 1 tbsp. peanut oil
- 1 free-range chicken
- 3 litres of tap water
- 4 sprigs thyme
- 2 laurel leaves

Halve the onion and heat a dry non-stick frying pan. Cook the onion, cut side down for 8 minutes on medium heat (the bottom of the onion may become browned).

Meanwhile, chop the leeks, carrots, celery, and lemongrass into 1 inch (3cm) pieces. Crush the peppercorns with a spoon and peel the ginger and cut into slices.

Heat the oil in a large soup pot and fry the ground turmeric 30 sec. Place the chicken in the pot and pour in the water, then bring to the boil. Scoop off any foam with a spoon.

Next, add in all the vegetables, pepper, thyme, bay leaves and half of the lemongrass, and half of the ginger and gently simmer for 2 hours on low heat. Scrape off any foam with a spoon.

Take the chicken out of the broth and set aside and strain the broth. Allow the broth to cool to room temperature, and then place in the refrigerator so that the fat solidifies, and you can scoop it out with a spoon.

In the meantime, remove the skin and meat from the chicken so that you can use it in other dishes, like pasta, salads or stews.

Put the pot with the broth back on the heat. At this point add the rest of the ginger and lemongrass and let it simmer for 45 minutes on low heat.

Remove the ginger and lemongrass, before serving or allow to cool to room temperature and freeze.

# REFERENCES & FURTHER READING:

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