

How to stay healthy and active at home

Manual

Project: Stichting Enschede Marathon (L.26621)

Group members: Saskia van Benthem,
Björn Flämig, Michelle Hiddink,
Suzanne Hilgeholt, Maïke Schnippering,
Saskia Smit and Jesper Timmers



Team members

Saskia van Benthem

I am 23 years old and currently doing my third year of Tourism Management at Saxion Hogeschool in Deventer



Björn Flämig

I am a 23 years old exchange student from Remagen (Germany). My field of expertise is Sport Management, which I study since September 2016



Michelle Hiddink

I am 23 years old and currently a fourth-year nursing student at Saxion University of Applied Sciences.



Suzanne Hilgeholt

I am 20 years old and currently a third-year nursing student at Saxion University of Applied Sciences.



Maïke Schnippering

I am 23 years old from Germany and am studying in my third-year tourism at Saxion Hogeschool in Deventer.



Saskia Smit

I am 20 years old and currently studying in my third year fashion and textile technologies at Saxion Enschede.



Jesper Timmers

I am 20 years old and studying fashion and textile technologies.



Preface

Thank you for your interest in our manual! This manual has been created by an interdisciplinary group of seven students in collaboration with the Enschede Marathon and in line with the Smart Solution Semester of Saxion University of Applied Sciences. It is aimed towards everyone who might be struggling with staying fit and healthy at home. Due to unfortunate events in terms of COVID-19, many of our daily routines rapidly changed and we all had to adjust our lives to self-quarantine.

On the following pages you will find elaborate information upon the effects of isolation on the human's body, suggested workouts to counteract these negative effects, nutrition tips and a guide for your perfect choice of sportswear whilst exercising.

We hope that you can take one thing or another from this guide to make your time at home even more pleasant and healthy. Take care of yourself and your fellows in these difficult times.

For a quick overview, please find a summary of the given data in Appendix I.

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Introduction

Effects of self-quarantine on the well-being of the individual

Former research on the effects of the SARS (Severe Acute Respiratory Syndrome) outbreak in 2003 has shown that self-isolation can bring along a wide range of psychological disorders. The outbreak of this respiratory syndrome implied a self-quarantine of around 100 people on one identified case in Canada whereas the average duration of quarantine amounted to ten days (Hawryluck, Gold, Robinson, Pogorski, Galea & Styra, 2004). According to the study by Hawryluck et al. (2004), 29% of 129 quarantined participants in Toronto had shown PTSD (Post Traumatic Stress Disorder) and 31% of those depression following isolation, partly lasting years after.

The feeling of helplessness and uncertainty during quarantine can be very upsetting and can turn people inside. The length of the quarantine, feelings of boredom, frustration, fear, lack of basic supplies and information can all have immense negative influence on the psychological wellbeing (The Star, 2020).

Strategies to keep mind and body healthy

Luckily there are numerous possibilities to keep yourself healthy. According to Sue Firth (as cited in Goldhill, 2020), occupational psychologist in the UK, humans need the ability to make decisions. Additionally, a sense of community and connection with each other are important concerning the human well-being. For example, being close to your friends and family members via telecommunications is important for the mental health and creates a feeling of togetherness.

Furthermore, it is highly recommended to create a daily routine, consisting of tasks and sport exercises. Activities with a purpose such as cleaning the house or helping other people can create stimulation. Individuals who are not considered being a part of the risk group and currently have much free time could consider helping other people who rely on support in these difficult times and relieve them by helping with groceries or walking the dog (Die Bundesregierung, 2020). Nevertheless, it is at any time crucial to avoid social contact whilst helping.

Next to mental stabilisers, also physical exercises are reported to be important. According to the German sports scientist and author Dr. Dr. Despeghel (as cited in Focus, 2020), cardio exercises help to strengthen the immune system. Strength training, on the other side, can stabilize the psychology, as Dopamin and Serotonin are being released. These two hormones act as antidepressant and diminish fear. As people need rituals in situations like these, it can be positive for mind and body to start your day with an exercise (Focus, 2020).

Health

The effects an inactive lifestyle can have on your health

Movement is very important. People who work from home are less likely to reach the exercise standard of the NNGB (half an hour a day of exercise) and are called inactive. Inactivity has no good effect on your body, nor on your mind (allesoversport, 2016).

Spending long periods of time during the day without activity can have serious consequences on the body. When you sit between eight and eleven hours a day, you are 15% more likely to die prematurely than people who sit four hours. Whereas, people who sit more than eleven hours a day are even 40% more likely to die prematurely than people who sit four hours (Nu.nl, 2017).

An inactive lifestyle can furthermore cause:

- Over storage of fat in the liver
- Obesity
- Diabetes Mellitus (DM) type II
- Heart and vascular diseases
- Weak bones due to bone density loss
- Increased risk of falling incidents
- Stiffness

According to allesoversport (2017), half an hour moderate exercising could help to make your lifestyle more active. Moderate exercising would include activities such as cleaning the house or walking the dog.

The amount of activity recommended to prevent a passive lifestyle



In the infographic on the left you can see the recommended amount of exercises per week (allesoversport, 2017).

Figure 1 - How much can I exercise to stay healthy

Exercises you can do concerning the muscle strength are the following: squat, lunge, glute bridge, planking, mountain climber and superman. On the right you can see how to perform the exercises:

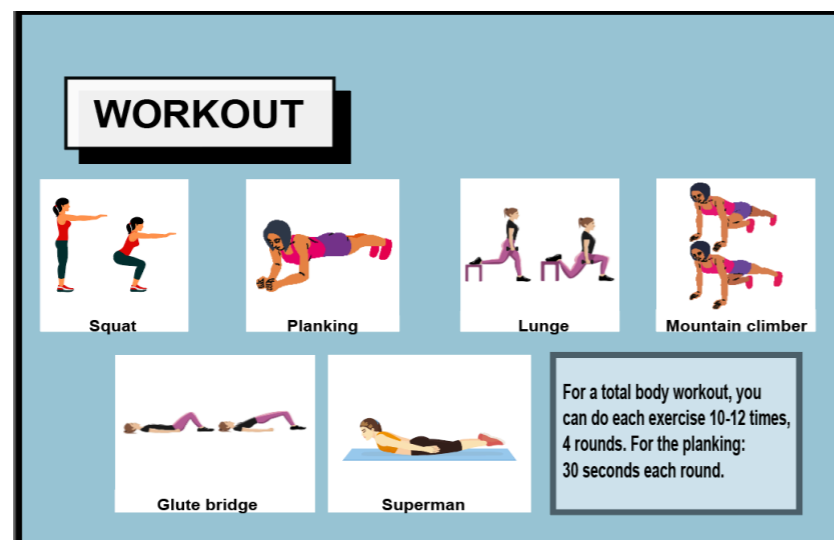


Figure 2 - Exercises

Of course there are numerous more workouts which can be done and a mix of them is being suggested. Some really effective and easy workouts can be found on the Youtube channels of "Madfit" or Pamela Reif, both are offering tutorials in english. On these accounts you will find full body workouts, but also specific workouts for your legs, arms or your abs. The videos vary from 10 minutes to 30 minutes and both accounts have workouts for beginners but also for advanced athletes. Below you can find the link to their pages:

- <https://www.youtube.com/user/PamelaRf1>
- <https://www.youtube.com/channel/UCpQ34afVgk8cRQBjSJ1xuJQ>

Additionally, their workouts are mostly apartment friendly, so you do not have to leave the house

Cardio workout at home

Think of walking up and down the stairs. Little fun fact: if you ran up and down the stairs (13 steps) 8.115 times, you would run a whole marathon (42,195 km) at home.

You can also think of walking back and forth in the house or in the garden. If you ran or walked back and forth a distance of 5 meters, so a total of 10 meters, you would finish a marathon distance after 4.220 repetitions.

Other alternatives are to do jumping a rope or make use of your old roller skates.

The positive effect of balance exercises

You can do balance exercises. This kind of exercise reduces the risk of ankle injuries, knee, hip and back problems (allesoversport, 2017). We put some examples below, so you can try them out at home (Fysiotherapie Hazenkamp, 2019):

- Walk in one straight line forwards, the heel may touch the toe of the other feet
- Walk in one straight line backwards
- Stand on one leg as long as possible
- Alternately walk on your toes and on your heels

Recommendations of top athletes

Also, top athletes from the Netherlands and Germany have been contacted in order to obtain some insiders tips and tricks how to best stay fit at home.

Prof. Dr. med. T. Wessinghage (personal communication, April 4, 2020), an experienced Marathon runner and chief physician of orthopaedics, recommends to continue, as far as possible your cardio training and also conduct it, as far as viable in nature. In order to bring in extra motivation whilst running it may additionally be an idea to bring in some variation into the ordinary cardio training, such as intervals, pace change or fartlek. Quite some time this has shown a positive effect upon the motivation of professionals whilst training (T. Wessinghage, personal communication, April 4, 2020).

Furthermore, the discontinuation for strength training due to the shutdown of gyms, can be compensated easily by walking the stairs up and down, using extra weights such as backpacks with optional additional weights and taking two steps at a time (Pippig, 2020; T. Wessinghage, personal communication, April 4, 2020). Also jumping exercises, such as burpees, jumping on one leg or lunges can be used as strength building exercises at home. In addition to those, exercises such as Pilates, Push-ups or straight planking can be performed without difficulties at home and contribute to stabilizing the whole body (T. Wessinghage, personal communication, 2020). Miranda Boonstra (personal communication, April 3, 2020), 16-times running champion and coach, suggests to do up to one hour workouts a day, whereas it is to be avoided to exercise excessively in order to stay fit and prevent feeling exhausted for the remainder of the day.

In addition to this, Jip Sander, an experienced Marathon runner, has published a blog including recipes, various sport exercises, and tips for your personal motivation. Alternatively, Suzanne Brummel, a former Dutch swimming champion has published an eBook targeted towards running enthusiasts, containing training schedules and practical tips. The eBook can be purchased for 4.95€ via her website: www.suzannebrummel.com.

Nutrition

Optimal nutrition for a healthy lifestyle

Good nutrition is crucial for health, particularly in times when the immune system might need to fight back. Here are some general nutrition tips:

- Take only what you need: Assess what you already have at home and plan your intake. You might feel the need to purchase large amounts of ingredients but make sure to consider and utilize what is already in your pantry, as well as food with shorter shelf life. This way you can avoid food waste.
- Prepare home-cooked meals: Normally, many individuals do not work from home and consequently have less time to prepare home-cooked meals. Currently spending longer periods of time at home may now offer the possibility to make those recipes you previously did not have time to make. Additionally, you are not bound to the food and drinks provided by your employer's canteen.
- Stay hydrated: Good hydration is crucial for optimal health. Whenever available and safe for consumption, tap water is the healthiest and cheapest drink. Drinking water instead of sugar sweetened beverages is a simple way to limit your intake of sugar and excessive calories.

Definition of calories (kcal)

Calories can be better understood as energy which can be won through the digestion of food and drinks. Diverse ingredients contain a different amount of calories, as can be viewed in the list below. Whereas fat, protein, alcohol, fibres and carbohydrates all contain calories, water, vitamins and minerals come without (voedingscentrum, 2020).

Containment of calories

Source*	supply of calories
1 gram fat**	9kcal
1 gram carbohydrates	4kcal
1 gram proteins	4kcal
1 gram alcohol	7kcal

(voedingscentrum, 2020)

* Fibers also contain kcal but only a narrow proportion.

** You can divide fat in saturated and unsaturated fat. Pizza, donuts and burgers are examples of food that contains saturated fat. Fish, avocados and olives are examples of food which contains unsaturated fat. Whereas the body can produce saturated fatty acids itself, for example from carbohydrates or other fats, unsaturated fat cannot be produced by the body itself and therefore needs to be gained via nutrition. Furthermore, saturated fat increases the blood's LDL-cholesterol, which in high amounts is not good for the blood vessels. Thus, the advice is to replace saturated fat as much as possible with unsaturated fat as this significantly reduces the risk of cardiovascular diseases (Voedingscentrum, n.d.).

It is important to mention that body fat, however, is not solely built from saturated or unsaturated fat, but consists of the surplus of energy sources which can come from any kind of ingredients, such as carbohydrates, proteins, sugars etc.. So when being on a diet, the body still would need a certain amount of healthy fats per day, as they play a major role in hormonal synthesis (Schoeber, Roex, & van der Voort, 2017, p. 61).

In the infographic on the right page, you can find an overview of the suggested daily calorie intake, depending on age and gender. Mind you that these are average numbers and might therefore vary per individual. An inactive lifestyle is here defined as less than 1 hour of intensive activities per day, whereas an active lifestyle is defined as more than 1 hour of intensive activities per day (Voedingscentrum, 2020).

App "MyFitnessPal"

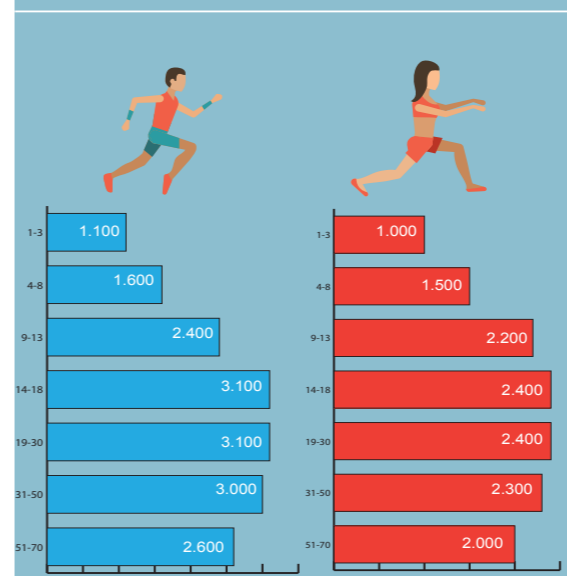
In order to calculate your personal demand of calories, also with respect to your personal fitness goal, we can recommend you the App "MyFitnessPal". It helps you to reach your personal fitness goal, by advising you upon your daily nutrition intake, whilst considering your personal information such as weight, height and lifestyle.

This App can be downloaded for free, and supports both Android and IOS Software.

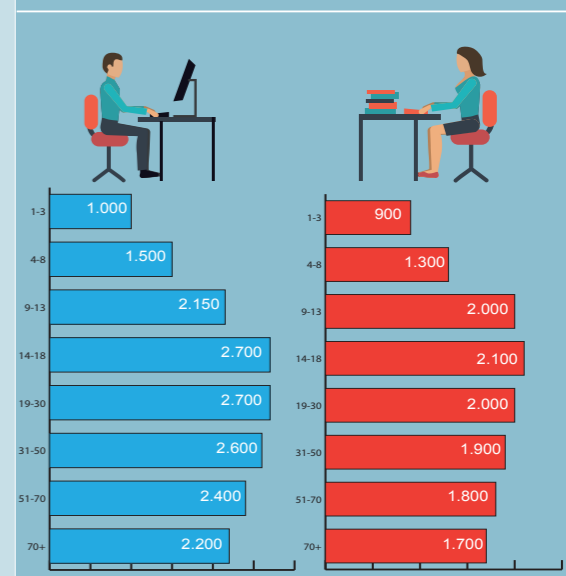


Figure 3 - Icon App MyFitnessPal

Overview of the recommended calorie intake during an active lifestyle



Overview of the recommended calorie intake during an inactive lifestyle



* Keep in mind, that these are average numbers and can vary per individual as the calorie intake depends on many more variables, such as height, weight and amount of sports (Voedingscentrum, 2020).

Figure 4 - Overview of the recommended calorie intake during an active and inactive lifestyle

What to consider about you nutrition when you follow a sporty lifestyle

When you follow a sporty lifestyle, you need to ensure a good intake of protein and carbohydrates. While protein will support the building of your muscles, carbohydrates can be broken down to gain energy for your body (Voedingscentrum, 2020). Before your workout it is important to eat meals including carbohydrates, so you have enough energy to burn during the workout (Bergman, 2020). Whereas after the workout protein will help to recover your muscles. Moreover it is important to ensure that your body is staying hydrated during workouts, as you are perspiring (BasicFit, 2018).

When you exercise excessively, the energy in your muscles can exhaust quickly, like for instance during marathon runs. To avoid this you should eat and drink even while exercising. It might be difficult to eat while doing cardio but isotonic sport drinks have the same effect as eating a banana for example (Voedingscentrum, 2020). Additionally, an isotonic sport drink will moisturize the body faster than water does (Van der Mark, 2018).

Examples of nutrition with a great level of carbohydrates

food / drink	kcal	carbohydrates per 100 gram	energy*
isotonic drink	22	3	12
banana	152	33	132
Combino Farfalle pasta	350	70,5	282
Carboloader (special sports nutrition)	380	93,2	372,8

(USDA, 2020; Calorielijst, 2020; Sportvoeding, 2020)

*The amount of energy in the last table depicts the energy level based on the amount of carbohydrates contained in the listed nutrition.

According to medical sociologist, trainer and writer Jeroen van der Mark (2018), you should consume different amounts of carbohydrates depending on the length and strength of your physical effort and the body type. Nevertheless, Jeroen van der Mark (2018) published average figures in order to give an approximate indication on how much calorie intake may be necessary depending on the length of the exercise. As the needed calorie intake depends on multiple factors these numbers should solely be taken as an orientation.

time	amount of carbohydrates you should consume per hour while doing sports
1 - 2 hours	30 g
>2 - 3 hours	60 g
>3 hours	90 g

What food to best integrate into your nutrition

On the following page an overview of ingredients has been provided. The green marked fields are according to Dr. Dr. Despeghele (as cited in Focus, 2020) and the World Health Organization (2020) supporting - and the dark red circles are negatively affecting a healthy lifestyle. Below more elaborate information about downsides and positive effects of the listed ingredients will be given.

First of all, it has been announced that Mediterranean oils such as linseed -, rapeseed – and olive oil offer a great supply of omega-3 fat which in turn is contributing to the health of your heart and brain metabolism. Apart from that, omega-3-fat functions as anti-inflammatory. Next to these oils the consumption of whole grain products in place of white flour is highly recommended, as those contain more vitamins, minerals and fibers. Additionally, it has been reported that teas made from lavender and St. John's wort have a motivating effect and are therefore helpful to prevent melancholy.

Secondly, it is recommended to integrate a decent amount of fruits and vegetables into your daily food preparations. It is advised to take in two pieces of fruit per day preferably before 5 p.m., in order to avoid stressing your sugar metabolism more than necessary. Citrus fruits such as oranges, clementines and grapefruits are great options, as well as bananas and apples. Also frozen fruits such as berries, pineapples and mangos are great choices, as they still contain high levels of fibre and vitamins and are often cheaper than the fresh versions. The frozen fruits can be added to juices, smoothies or porridge.

In addition to this, one is advised to consume 400-500 g of vegetables daily. Root vegetables such as carrots, turnips and beets, as well as vegetables like cabbage, broccoli and cauliflower pose a great selection due to their nonperishable attributes. Optionally you could also process your daily dose of fruit and vegetables to a smoothie with the help of a common juicer.

Thirdly, it is advised to add legumes such as peas, beans, lentils and a small handful of nuts, such as almonds, to your daily meals as they offer a great source of vegetable protein, fibre, vitamins and minerals. These are rather versatile and therefore can be used for a diversity of dishes such as stews, soups, spreads and salads.

Fourthly, it is recommended to take in a moderate amount of fish and eggs. Unfortunately, nowadays fish is often contaminated which is why it is recommended to enjoy it with caution (Focus, 2020). Nevertheless, canned tuna, sardines and other fish are good sources of protein and healthy fats. These can make a healthy addition to salads, pasta or whole grain breads. If possible, choose fish canned in water rather than oil or brine. Moreover, you shouldn't eat more than one egg a day because it includes 280 mg of cholesterol. The recommended maximum is just under 300 mg per day. However, eggs also present a great source of protein and nutrients (Fit for fun, 2018).

Furthermore, you should minimize the consumption of dairy products, such as yoghurt. Especially, sweetened dairy products but also curd cheese and milk contain a great amount of omega-6 fat. A high amount of this fat can primarily lead to inflammations. An example of these inflammations can possibly be seen in your skin or felt in your muscles and joints. It can also cause blood clotting and constrict your blood vessels. Take in mind that this only may happen with excessive intake of Omega-6 fats in comparison to Omega-3 fats. So once again variety in your diet is key (Harvard Health letter, 2009).

In addition to that it is advised to avoid the consumption of meat as far as possible, especially of red meat like beef, pork, lamb, goat and sausages. People who eat red meat and sausage nearly every day have a higher risk of falling sick with colon cancer. According to the World Health Organization (2020), the risk of colon cancer is 17% higher per 100 g of red meat. Additionally, the organization recommends not to eat more than 300 g of red meat per week. Sugar, sweet drinks and especially alcohol should also be avoided. Alcohol affects your immune system and your physical performance negatively (Focus, 2020).

In appendix II, you can find various recipe ideas in terms of an appropriate nutrition.

Food to integrate into your nutrition

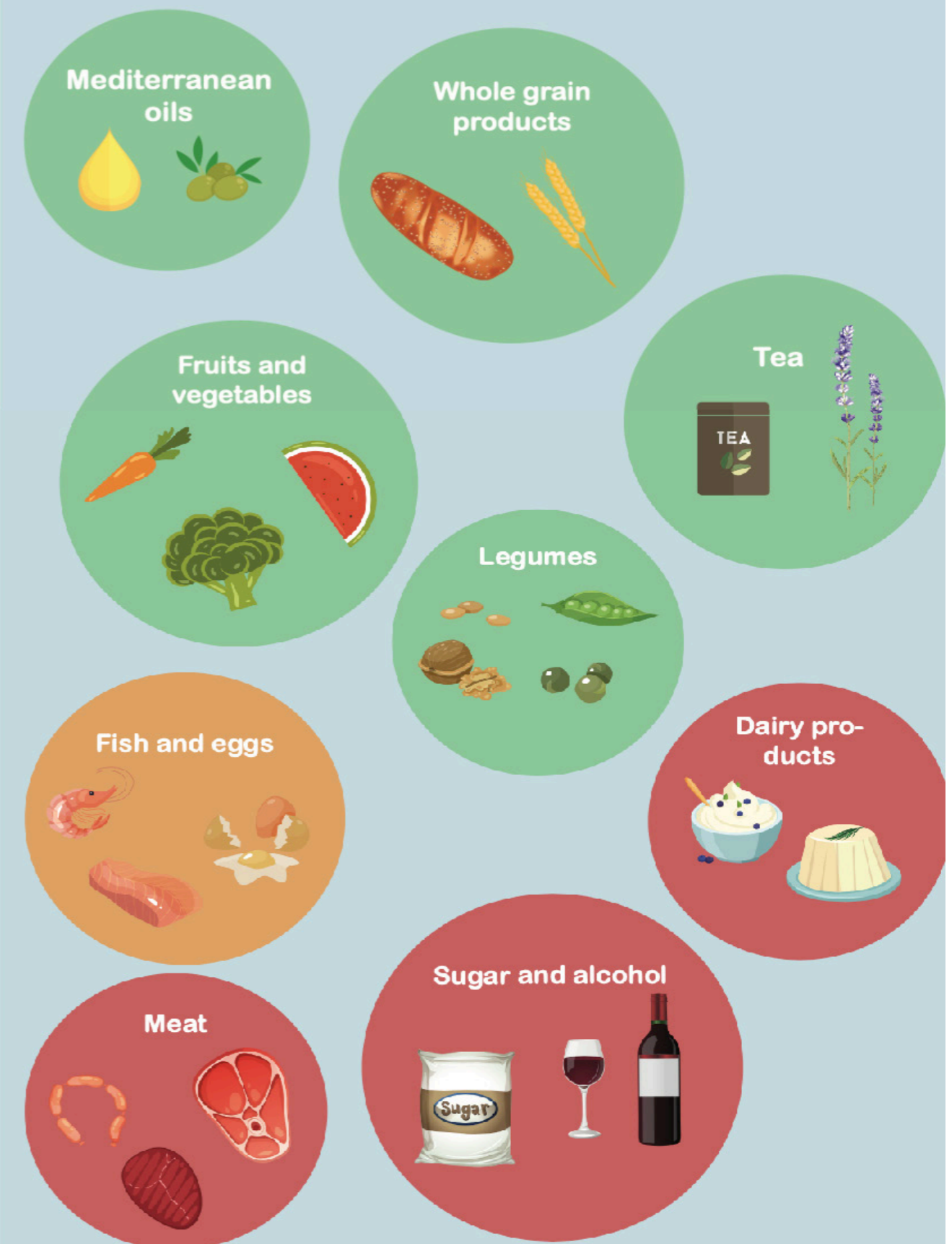


Figure 5 - Food to integrate into your nutrition

Sportswear

What to wear in order to support your individual workout

When choosing the perfect sportswear for your workout, it is amongst others important to take the fit and the material into consideration, as both may have an affect on your sport experience. There are various materials to choose from and all have their own strengths and weaknesses. Therefore, they are suitable for different types of exercises. The most common materials you will find in sportswear are cotton, nylon and polyester. Below you can find detailed information about possible materials and its abilities, together with the perfect fit for your individual workout. In the Appendix III, you can find an overview of the positive and negative aspects for every sportswear material mentioned below.

Which materials to wear

Cotton

A lot of people have some basic cotton t-shirts in their possession and this is not without a reason. Cotton t-shirts are known for their comfortable feeling, durability and their breathability. These features make them suitable for general wear but also for wearing them whilst doing exercises. The material will not hinder your movements or irritate your skin (Peterman, n.d.).

An important aspect to consider when choosing sportswear is the thermoregulation of the fabric. This means in what way can the fabric help your body to regulate its temperature. The body will sweat in order to regulate its temperature, cotton can easily capture this sweat from your body which is a good ability. However, cotton soaks up the sweat and is not easily evaporating it into the air (Feiereisen, 2017).

Whilst exercising and sweating excessively a lot your cotton t-shirt will get drowned. This will be an uncomfortable feeling and when exercising outside it can cool down your body temperature too quick.

When you go for a heavy exercise during which you will sweat a lot, we would advise to wear clothes that stimulate your sweat to evaporate in the air quickly. A cotton t-shirt does not have this ability. However, when you plan to do a rather moderate workout, cotton may be a good choice.

Polyester

A popular fabric for sportswear is polyester. The high strength and the durability are one of the reasons why polyester is commonly used. It has hygroscopic properties which means that its wet strength and dry strength are

equal, which means that a polyester garment will not lose its strength while performing sports. Another good property of polyester is the elasticity which means that the garment will withstand different movements. Due to the high tensile strength, a polyester garment will not wrinkle and therefore retain its shape after a wash. Polyester is hydrophobic which means that it will not absorb moisture. Whilst exercising, the sweat will not be absorbed by a polyester garment and thus the garment will not stick to your body. Because of the fact that the

garment does not absorb sweat, it will evaporate into the air more easily and help to sustain the body temperature. This ability is called "moisture wicking". You can read more about Bamboo fabrics on the right page (Palmgear, n.d.).

One of the disadvantages is that polyester does not feel soft against your skin in comparison to cotton, bamboo etc.

We would advise a polyester garment when your workout is moderate to excessive. For an intense workout we advise nylon fabric which evaporates your sweat better.

Nylon

Nylon is also a common synthetically made sportswear. In comparison to polyester nylon is much stronger and has better abrasion resistant. Also, nylon is hydrophobic and has a low moisture absorbency. Your sweat will not be absorbed, so the garment will not stick to your body. With the right treatment, the wicking and quick drying properties can be improved. It can be called very durable (Feiereisen, 2017).

Keep in mind that nylon is not very insulating which makes it unsuitable to wear during cold weather. It is suited to wear in warmer temperatures since it has the tendency to remain cool when moisture is present, such as the perspiration from the body.

Originally, nylon was made as an alternative to silk, so the fabrics are very soft and flexible which makes it very comfortable to wear (Norwaygeographical, n.d.).

We advise nylon for moderate to heavy workouts in normal but also hot weather as it is very comfortable and dries quickly.

Bamboo

Bamboo may still be rather unknown in terms of sportswear, but nevertheless contains great abilities to discuss. It will give you a comfortable feeling and keep your body temperature cool whilst exercising. This has to do with moisture wicking properties of bamboo (Feiereisen, 2017). These abilities are created by the bamboo fibers which soak up the sweat and then quickly draw it away from the body to the outside of the fabric where it can evaporate into the air (Valdez, 2018). This will help your body temperature to stay at an acceptable level and your t-shirt will stay dry for a comfortable feeling.

Moreover, bamboo only needs 1/3 of the water that cotton needs to grow, whereas barely any pesticides are being used in the growing process. Yet, it should not be forgotten, that the process from bamboo to fiber is rather polluting (Feiereisen, 2017).

To sum up, sportswear made from bamboo is less known but still poses a great alternative to commonly used fabrics. It is the only natural material used in this list which has a moisture wicking ability. So, it would be interesting to try it besides your normal sportswear made out of synthetic or cotton fibers. It is more expensive, but it is an investment to try out a natural material with a moisture wicking ability.

Nike Dri-FIT, Adidas Climacool

When you think of sportswear, many people will wear clothes of big sportswear companies like Nike or Adidas. They are not only popular because of their well-known name but also due to their usage of innovative fibers in their sportswear. This should help the wearer to reach optimal results whilst training.

The body temperature should not raise too much when aiming for the best performance. This is why thermoregulation is so important, as a steady body temperature can be achieved through moisture wicking fabrics. Whilst doing research it was recognized that people who wore a normal cotton t-shirt had a higher body temperature than people who wore synthetic garments which had moisture wicking (de Sousa, Cheatham, & Wittbrodt, 2014).

Nike created a technology called Dri-FIT, one of the innovations of Adidas is called Climacool. Garments created with these techniques are all focused on giving athletes the best conditions whilst exercising. They among other also made use of the moisture wicking ability and the breathability. The difference with other fabric is that these fabrics are innovated and completely focused on creating as much moisture wicking and breathability as possible.

These high-quality abilities can be created with the use of for example microfibers (Jones, 2013). Some areas within the garment will have more breathability. This aimed used of different materials can be called body mapping (Hochswender, 2010).

When aiming for high performance and not a regular exercise we would definitely advice sportswear of brands which make use of these innovative techniques. When you go for a normal exercise these products will also be great but they are not necessary.

Keep in mind that these technologies are completely focused on creating the best performance conditions and because of that are not always using the most sustainable options in term of processes or materials.

The right fit

Materials are not the only thing to consider when choosing sportswear. A good fit of your garment is very important. Most professional athletes choose garments which enable the comfort and blood circulation. The right clothes support and strengthen your muscles and maintain your posture. The regulated blood flow increases the muscle oxygenation and improves the body temperature. When you wear wrong and uncomfortable clothes, however it can cause painful blisters (Piranhasportswear, n.d.).



Figure 6 - The right fit

Some helpful information is listed below:

- Horizontal wrinkles: If you see horizontal wrinkles on your garment, it means that either your garment is too long or too tight. Long and loose wrinkles mean that your garment is too long. Tense and tight wrinkles mean that your garment is too tight around your body.
- Vertical wrinkles: If your garment shows vertical wrinkles, it means that either your garment is too loose or too short. Tense and tight wrinkles mean that your garment is too short. Long and loose wrinkles show that your garment is too loose.
- Diagonal wrinkles: When diagonal wrinkles are tense and tight, it means that there is no ease. Bottlenecks can occur which can decrease the prestation and the freedom of movement. Long and loose wrinkles mean that the upper part of the garment above the wrinkle is too loose.

To sum up, these are all factors which should be taken into consideration when choosing the perfect sportswear to support your individual workout. Remember that exercising can be done in all kinds of clothes but there are options which can make your workout more efficient.

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HOW TO STAY HEALTHY AND ACTIVE AT HOME

Due to the corona-virus, people worldwide are forced to stay at home. But what are the negative affects of less activity? And how can we manage to stay healthy at home?

Negative health effects of inactivity

How many hours of the day do you spend sitting? Endocrinologist Dr. James Levine, did research about the negative health effects of what he calls 'the sitting disease'. Sitting more than eleven hours a day, is called 'deadly'. Dr. Levine also says 'sitting is the new smoking'.

Due to the research of Dr. Levine, these are the negative health effects of sitting more than 4 hours a day:

- Over storage of fat in the liver
- Obesity
- Diabetes Mellitus, type II
- Heart and vascular diseases
- Weak bones due to bone density loss
- Increased risk of falling incidents
- Stiffness





What can you do to stay active at home?

Daily moderate exercise can prevent these above negative health effects. Try to keep moving for at least half an hour a day. If you're able to move even longer, go for it!

Take a quick steady walk or do some exercises at home. Also, cardio exercises can strengthen your immune system whilst strength exercises stimulate the release of two hormones which act as antidepressive, and stress relief.

Below we give you some exercise tips:

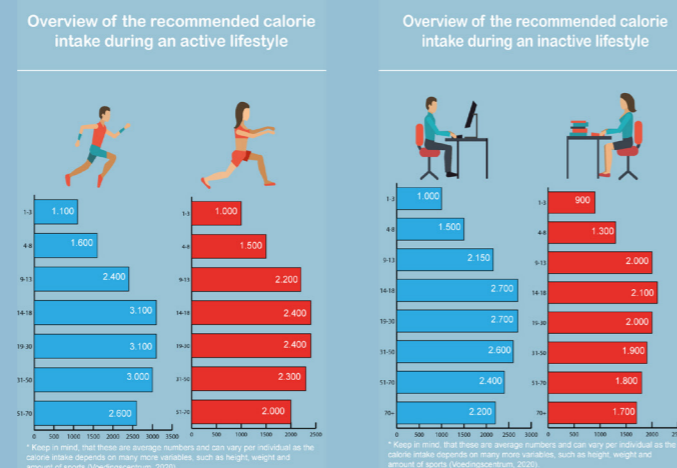
How much can I exercise to stay healthy

Youth 4 to 18 years	Adults and elderly
 1 hour a day moderately intensive exercise. <small>Moderately intensive is when your breathing becomes faster</small>	 3 times a week muscle and bone strengthening activities <small>Like volleyball, dancing, playing outside and cycling</small>
 2,5 uur per week moderately intensive exercise. <small>Spread the exercise over several days</small>	 2 times a week muscle and bone strengthening activities <small>For the elderly in combination with balance exercises</small>

What about nutrition and an active lifestyle?

One of the most important things within nutrition, is hydration. Drink, if possible, at least 1,5 liter water a day. But a body also needs energy (also known as calories) to be able to move. There are different kinds of components that contain calories. There are fats, proteins, alcohol, fiber and carbohydrates. 1 Gram of fat contains 9 calories, a gram of carbohydrates contains 4 calories and a gram of proteins contains 4 calories.

According to Dr. Despeghel (sports scientist and author) and the World Health Organization, two types of comestibles are currently the most appropriate and healthy ones. On the one hand Mediterranean high-quality oils such as linseed oil, rapeseed oil and olive oil for the supply of omega-3. On the other hand whole grain products that overall include more vitamins, minerals and fiber than processed white flour. Also, it is recommended to eat two fruits and 400-500 grams of vegetables a day. They are followed up by fish and eggs in the fourth stage, dairy in the fifth stage and meat at last. In the schedule below you can find the average amount of calories you need as an daily intake.



What kind of textiles are best to be active in?

When going for moderate exercising cotton is a good possibility to work out in. We would advise a polyester garment, when you are going for a normal to excessive work out.

When going outside in hot weather, we advise nylon as it is very comfortable and dries quickly. Nylon is also suited for any kind of work out. If you aim for high performance and you are not going for a regular exercise, we advise sportswear from brands which make use of innovative techniques such as the Nike Dri-fit and Adidas Climacool sportswear range.

You can also try bamboo textile, but our advice would be to see it as something you could try out instead of your normal sportswear made out of synthetic or cotton fibers. It will be more expensive, it's an investment to try out something different but it has special abilities for a natural material.



Green pea stew

What do you need?

- 1 garlic clove
- 2 ripe tomatoes
- 1 carrot
- olive oil
- 5 gr dried coriander
- 200 gr green peas
- 400 gr black beans
- a hand chopped sweet paprika
- 4 eggs (optional)

How to make

1. Skin and chop the tomato, crush the garlic and cut the carrot into thin slices.
2. Add a drizzle of oil in a saucepan and sauté the tomatoes and garlic; add 1 bunch of chopped coriander and the carrot and cook until soft.
3. Add the peas and black beans to the saucepan, along with 1 cup of water and season with paprika and dried basil. Cover with a lid and cook for 8 minutes.
4. Add the eggs, if you choose to use them, then cook for about 10-15 minutes more.
5. Add the remaining chopped coriander, if you are using it. You may serve this with rice and salad.

Sauteed pasta with vegetables and canned tuna

What do you need

- 400 gr pasta
- 50 ml olive oil
- 200 gr broccoli
- 150 gr onion
- 30 gr garlic
- 80 gr celery (optional)
- 10 gr dried thyme (optional)
- 200 gr carrots
- 150 gr tomatoes
- 300 gr canned tuna
- Spices and pepper
- Soy sauce(optional)
- 5 gr dried basil (optional)

How to make

1. Cook the pasta according to the instructions on the package. Try to avoid overcooking, to keep the nutritional properties and texture of the pasta. Cool the pasta under running water, drizzle with some oil and set aside.
2. Cook the broccoli in boiling water for 8 minutes (or 10 minutes for frozen broccoli), drain and set aside.
3. Meanwhile, sauté the onion, garlic and celery with a drizzle of oil for 5-8 minutes over a medium heat. Add the dried thyme and carrot and cook for another 5 minutes over a medium heat. Then add the tomato and tuna. Stir the sauce and let it cook for another 10 minutes, tasting and refining the flavours with herbs and spices, if needed.
4. Add the pasta and broccoli to the sauce and stir until hot. Flavour with a small amount of low-sodium soy sauce if desired and serve with finely chopped basil.



Chickpea and mushroom patties

What do you need?

- 80 gr onion
- 80 gr mushrooms,
- 20 gr garlic
- olive oil
- 3 gr dried parsley
- 10 gr mustard
- 2 whole eggs
- Pepper
- 30 gr breadcrumbs

How to make

1. In a frying pan, sauté the mushrooms, onion and garlic in a small amount of oil. Season with a small amount of salt and heat or cook until the mushrooms are tender and lose water.
2. In a food processor or blender, blend the chickpeas into a paste.
3. Add the prepared mushrooms, parsley, mustard and blend again.
4. A little at a time, add the flaxseeds, flour or eggs, and blend again, adding until the ingredients bind together well and can be easily shaped.
5. Add pepper to taste.
6. Shape the mixture into balls, coat them in breadcrumbs and flatten them to form patties.
7. Preheat the oven to 200 °C and place the patties in a tray lined with parchment paper.
8. Bake until lightly browned on the outside.
9. If you prefer, or do not have access to an oven, you can cook them in a non-stick frying pan with a little oil.
10. You may assemble the patties in a burger with whole grain bread, lettuce and tomato, or accompany them with wholegrain rice or baked potatoes and salad or vegetables.

How to make

- Green tea
- Cascade flowers
- Rose hip
- Cinnamon
- Echinacea herb
- Lemongrass
- Orange peel

'Good mood tea'



Appendix III - Overview of sportswear material

	+	-	
 <p>Cotton</p>	 <p>SOFT & COMFORTABLE</p>  <p>Moisture absorption</p>  <p>durable</p>  <p>Breathable</p>	 <p>Moisture Wicking</p>  <p>COOLING</p> <p>can cool the body down too quickly</p>	<ul style="list-style-type: none"> ✓ general wear ✓ moderate workout ✗ heavy workout
<ul style="list-style-type: none"> ✓ moderate to heavy workout 	 <p>STRENGTH</p>  <p>durable</p>  <p>SMART STRETCH FABRIC</p>  <p>Moisture Wicking</p>	 <p>soft feel</p>	 <p>Polyester</p>
 <p>Nylon</p>	 <p>STRENGTH</p>  <p>durable</p>  <p>Moisture Wicking</p>  <p>COOLING</p>  <p>SOFT & COMFORTABLE</p>  <p>SMART STRETCH FABRIC</p>	 <p>INSULATED</p>	<ul style="list-style-type: none"> ✓ moderate to heavy workout ✓ warm/hot weather ✗ cold weather
<ul style="list-style-type: none"> ✓ moderate to heavy workout 	 <p>SOFT & COMFORTABLE</p>  <p>COOLING</p>  <p>Moisture Wicking</p>  <p>Moisture absorption</p>  <p>ABSORBS & RELEASES MOISTURE QUICKLY</p>  <p>Natural Fibers</p>	 <p>expenses</p>	 <p>Bamboo</p>
 <p>Dri Fit / Climacool</p>	 <p>Performance Fit</p>  <p>Breathable</p>  <p>Moisture Wicking</p>	 <p>expenses</p>	<ul style="list-style-type: none"> ✓ moderate to medium workout ✓✓ heavy sports ✓ optimal results whilst exercising