Methods Paper for the Lifestyle Test – Finland

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Methodology in general

The Lifestyle test quantifies the individual's climate impact across four key domains: housing, transport, food, and other consumption. The carbon footprint includes the impact of daily activities determined by lifestyle choices, excluding greenhouse gas (GHG) emissions resulting for example from public services and financial activities. Thus, the lifestyle carbon footprint does not consider GHG emissions for example public health care or education services, business travels or investments.

In essence, to calculate the carbon footprint of a consumption category, the quantity of consumption (measured in kg, euros, kWh, km, etc.) is multiplied by the corresponding carbon emission factor (kgCO2e * kg, euros, kWh, km, etc.).

The test calculates the carbon footprint using consumption-based accounting instead of production-based accounting. Production-based accounting focuses solely on direct emissions from domestic production activities within specified geographical boundaries. In contrast, consumption-based accounting covers both direct emissions in a country and embodied emissions of imported goods while excluding emissions associated with exported goods. The test employs the bottom-up Life Cycle Assessment (LCA) method and physical units, except for the other consumption domain for purchases. The carbon footprint of purchases and pets is calculated using the top-down environmentally extended input-output EEIO method and monetary units.

For a more in-depth understanding of the methodology behind consumption-based accounting, refer to the report "1.5-Degree Lifestyles: Towards a Fair Consumption Space for All" by Akenji et al. (2021), specifically pages 32 to 35. The consumption and emission intensity data are mainly the same as those used in the upcoming report by the Hot or Cool Institute (Hot or Cool, forthcoming).

The LifeStyle test is based on average consumption levels and carbon footprints, which are then adjusted according to users' answers. For example, in the housing category, heating emissions are estimated from average heating demand and adjusted based on the user's home type, building age, and renovation status. The final consumption is then multiplied by the emission intensity of the chosen heating method. While most calculations start from average values, in some cases it's more practical to ask users directly about their consumption levels. In the transport category, for instance, users enter their own driving distances rather than relying on average national car usage km/person/year as a baseline.

This method is chosen to ensure that the test remains user-friendly and that participants can answer the questions without needing to look up additional information. For example, in the case of heating, asking users to provide their heating consumption in kilowatt-hours (kWh) would be impractical, as most people may not know this information offhand.

Living

The climate impacts of living consider the construction and maintenance of buildings, the heating of dwellings and water, electricity, and water consumption. The following section describes how each question affects the calculations.

Household members

The energy consumption and construction of the user's home are evenly distributed among all household members.

Building type

Building type affects the heating and construction emissions. Specifically, the building type impacts the insulation, thereby affecting heating demand. The Lifestyle Test estimates the insulation type of a user's home based on the construction year and whether the building is energetically renovated or not. Older buildings are assumed to have inferior insulation compared to newer ones and renovation improves the insulation. The correlation between the insulation and heating demand is estimated using information from the following sources: BPIE (2023), GJETC (2020), Mastrucci et al., (2021), Pylsy et al., (2020) and Savvidou & Nykvist (2020). The heating demand is estimated to be higher in buildings constructed before 1990, which are assumed to require 40% more heating compared to buildings constructed after 2010. If user's home has been energetically renovated, it is assumed to have the same heating demand as buildings constructed after 2010.

The construction and maintenance of buildings include GHG emissions from manufacturing of the building materials, land-use change of the building area, and construction, maintenance and demolition of the buildings. The climate impact of construction is affected by the building type. Detached houses and terraced houses have a construction and maintenance footprint of 6,9 kgCO2e/y/m2 and flats have a construction and maintenance footprint of 8 kgCO2e/y/m2 (Saari, 2001; Salo et al., 2016).

Electricity

Electricity consumption includes all household electrical uses, excluding space and water heating, as these are included under heating emissions when electricity is used for those purposes. The average Finnish electricity consumption is from Tilastokeskus, for the year 2023 (Tilastokeskus, 2023). The Lifestyle Test lacks specific questions regarding the user's electricity consumption. Consequently, all users are assumed to have the same electricity consumption, 3 700 kWh/person/year (excluding electricity used for heating).

Despite the absence of personalized consumption data, the test includes a question allowing users to specify the type of electricity they use: "green", "ordinary", or "I don't know". Green electricity considers renewable electricity sources (wind, water, solar and renewable fuels) used in Finland while ordinary electricity represents the average grid electricity. Ordinary grid electricity is also used for users who answer they don't know their electricity type.

The emission intensity of grid electricity is modelled using data Tilastokeskus (2023) and CO2e data from ecoinvent 3.9. Grid electricity includes both domestically produced and imported electricity. Emission intensity accounts for direct and indirect emissions. Indirect emissions include production chain emissions from fuels, land-use emissions, and embedded emissions from renewable energy equipment like solar panels and wind turbines. The average grid electricity for 2023 is 0.06 kgCO2e/kWh.

Primary heating method

The question about the primary heating method includes the common heating methods used in Finland. The LifestyleTest estimates the space heating consumption (kWh/person/year) by using the average space heating consumption in Finland. The adjustment is made based on the user's responses regarding their home construction year, if the building is energetically renovated, the room temperature when space heating is in use and which part of Finland the user lives. The average space heating consumption (7474 kWh/person/year) is from Tilastokeskus (Tilastokeskus, 2023).

The emission intensities of the heating options are from ecoinvent 3.9. except for ground and air heat pumps where the data are from (Skandinavian Lämpöpumppu, 2024). If the user has an electric or air/ground heating pump for heating, the calculations integrate the emission intensity specific to the user's response to the electricity type question (ordinary or green electricity).

Room temperature

Higher room temperatures require more heating than lower temperatures. An estimation of "a 2-degree rise in temperature equals a 10% increase in heat energy" is used in the test (Motiva 2019).

Showering

Showering forms the majority, over 70%, of the total residential water use (EEA, 2020). The water consumption during showers is estimated based on the user's shower duration, where 1 minute of showering is equivalent to 12 litres of water of which 40% is hot water (Motiva, 2020). The climate impact of water consumption considers tap water production, wastewater treatment and the energy required for water heating and emission intensities for these are sourced from ecoinvent 3.9.

Location in Finland

The location of the user's home defines how much less, or more heating energy is needed in comparison to the average consumption of heating energy. Homes in Northern Finland have space heating requirements 20-25% higher than Southern Finland and homes in Central Finland require space heating 10-15% more than homes in Southern Finland (Motiva 2024).

Mobility

Driving

The carbon footprint of driving is calculated using the annual kilometres driven and the type of fuel used in the user's car. GHG emissions are evenly distributed among the typical number of occupants in the user's car. Emissions include the production and maintenance of vehicles, the use of road infrastructure, and direct and indirect emissions from fuel consumption. Direct emissions occur during fuel use, while indirect emissions come from producing and supplying the fuel. The production and maintenance of vehicles, as well as the use of road infrastructure, are modelled using ecoinvent 3.9. Emission intensities for vehicle production and maintenance vary depending on the fuel type, for example electric cars include emissions from battery production and maintenance.

Emission intensities of fuel consumption for petrol, diesel, and gas vehicles are sourced from ecoinvent 3.9 (Wernet et al., 2016). For electric vehicles, emissions are modelled based on average electricity consumption kWh/v-km (EV Database, 2024). It is assumed that vehicles are charged using national grid, and therefore the emission intensity considers the national electricity mix. Emissions from hybrid vehicles are modelled using data from Transport & Environment (2024), representing an average of conventional hybrids (HEVs) and plug-in hybrids (PHEVs).

Public transport

Public transport includes travel by bus, train, tram, and metro. The emission intensities of these modes are from Ecoinvent 3.9 (kgCO2e/p-km) (Wernet et al., 2016). The test includes one question about public transport without differentiating between modes. To calculate GHG emissions, a weighted average emission intensity is calculated based on the average Finnish shares between different modes (Traficom, 2023; Finnish Transport Infrastructure Agency, 2024). Emissions include the production and maintenance of vehicles, the use of road and rail infrastructure, and direct and indirect emissions from fuel consumption.

Air travel

Emissions from air travel are estimated based on the number of hours a user spends flying in a year, considering the average airspeed of commercial planes of 800 km/h (GoFlex Air, 2024; The Aviation Factory, 2023; Thrust Flight, 2024).

The fuel consumption per passenger during a flight is influenced by various factors, including the air fleet, aircraft occupancy rate, and the allocation of emissions between passengers and cargo. In the Lifestyle test, the carbon footprint of flying incorporates not only direct and indirect emissions from fuel use but also embedded emissions from aircraft and airports, as well as the impact of increased atmospheric radiative forcing.

Air traffic contributes to atmospheric radiative forcing through the release of fine particles at high altitudes and alterations in cloud cover. While there is considerable uncertainty in these estimates, recent research, published in 2021 by Lee et al., suggests that 66% of the total climate impact of aviation comes from sources other than the direct impact of carbon dioxide in fuel. Consequently, to account for these additional causes of radiative forcing based on current knowledge, it is justifiable to multiply the carbon footprint calculated from fuel consumption by a factor of three (Lee et al., 2021).

Travel by ferry

The test asks the number of times that the user had ferry trips. The distance of one trip is based on the typical ferries operating in the most popular ferry routes (Helsinki or Turku to Tallinn, Stockholm, and Travemunde).

Emissions from ferry transport can vary significantly depending on the allocation method used to distribute emissions between passengers and freight. Common allocation methods include area-based, weight-based, and economic value-based approaches. In the Lifestyle test, the emission intensity for ferry trips is based on reported values from ferry operators Tallink Silja and Finnlines (Tallink Group, 2024; Finnlines, 2024), which apply weight-based allocation. These figures account only for direct CO_2 emissions from fuel consumption. Indirect emissions from fuel production, as well as emissions from shipbuilding, maintenance, and scrapping, are based on data from TNMT (2021). The calculations consider foot passengers only and do not include emissions from vehicles transported on board.

Walking or biking

Walking and biking are considered to be carbon-free alternative means of transport and not part of footprint calculation. This question is asked to be able to offer more precise actions after taking the test in the action plan phase.

Food

Eating habits

The carbon footprint of food considers the diet composition, the quantities consumed and food waste. Energy required for cooking and cooling of food ingredients at home is included in the living section and grocery shopping trips are part of the transport section.

The amount of food eaten is evaluated by asking if the user eats less, average, or more compared to other people. The assumption in the test is that the user consumes 15% more or less than the average Finn.

To define the diet composition, the test asks how much the user eats from different food groups which affect the most to the carbon footprint, such as meat, fish, dairy, and beverage consumption. Food groups, which do not have a specific question, the test assumes the amounts of the average Finnish diet. The data for the average Finnish diet is mainly from the Balance Sheet for Food Commondities (Natural Resources Institute Finland, 2023). This data is derived by analyzing the amount of food products purchased for consumption during the specific period. These retail amounts are compatible with the emission intensities used in the calculations.

Emission intensities primarily come from the ecoinvent 3.9 database. In instances where specific intensities are unavailable in ecoinvent, AGRIBALYSE 3.1 (2022) is used. The methods for calculating emission intensities in both databases are similar, ensuring comparability. For meat products, we used Finland-specific emission intensities (Hietala, 2023) for beef, pork and poultry for domestically produced meat and global intensities from ecoinvent 3.9 for imported meat products. The system boundary for emission intensities is cradle-to-store.

If the user eats less or no meat, fish, and dairy, these are substituted by plant-based alternatives. The substitution scenario is based on Eat Lancet report (Willet et al., 2019), where animal-based products are substituted by legumes, nuts, seeds, vegetables and grains.

The test questions ask about food consumption in a number of portions and average portion sizes are based on EatForHealth numbers (National Health and Medical Research Council, 2021). Some questions combine multiple food groups, considering the share of average Finnish consumption between these groups.

Food categories

Beef

Beef is classified under its own category due to having a higher emission factor than other meats. The emission intensity for domestically produced beef is derived from Hietala (2023) and imported beef from ecoinvent 3.9 (Wernet et al., 2016). Emission intensity from ecoinvent is converted from live weight to carcass weight using factors from Clune et al., (2017).

Pork, Chicken, fish, or eggs

The emission intensity of pork is slightly higher than other foods in the category but significantly lower than beef. The proportions of different foods are determined based on their average consumption in Finland (Natural Resources Institute Finland, 2023). Emission intensities for domestically produced pork and poultry are sourced from Hietala (2023) and imported ones from ecoinvent 3.9 (Wernet et al., 2016). The emission intensity for fish is from ecoinvent 3.9. and for eggs from AGRIBALYSE 3.1 (2022). Emission intensities for pork, poultry, and fish from ecoinvent are converted from live weight to carcass/catch weight using factors from Clune et al. (2017).

Dairy products

The emission intensities are obtained from ecoinvent 3.9. The cheese category includes soft and hard cheese products made from cow's milk and emission intensities are sourced from AGRIBALYSE 3.1 (2022).

Beverages

The emission intensities for all beverage products are sourced from AGRIBALYSE 3.1 (2022) or ecoinvent 3.9 (Wernet et al., 2016). The average share of coffee, tea, fruit and vegetable juices, soft drinks and alcoholic beverages was considered in the beverage consumption question (Natural Resources Institute Finland, 2023).

Food waste

The food waste calculations include GHG emissions from biowaste treatment and the additional food production needed for the wasted food. The emission intensity of biowaste treatment is from ecoinvent 3.9 (Wernet et al., 2016). The majority of the climate impact of food waste is from food production rather than biowaste management.

Consumption

Living, mobility and food are the most significant contributors to the carbon footprint of an average Finn (Akenji et al., 2021). It would require a number of questions to make a comprehensive estimation of the carbon footprint of other sectors of personal consumption. In such a case, the effort it would require for a respondent to complete this section would no longer be in proportion to the significance of this sub-sector. Therefore, the Lifestyle test focuses on key aspects within this section, including GHG emissions from purchases, leisure, summer cottages, and pets.

Shopping habits

The test has a question on users' shopping habits and purchases, allowing them to specify whether they buy more, the same amount, or less than the average Finn. Consumption is adjusted by 30% accordingly. Purchases include furnishings, home care products, clothing, footwear, goods related to leisure activities and hobbies, audiovisual devices, and printed materials. The average consumption amounts are from Eurostat, (2022). The climate impact of purchases is calculated using emission intensities from exiobase 3.8 (Stadler et al., 2021). To align consumption amounts with exiobase emission intensities, conversion from consumer prices to basic prices is necessary.

Second-hand

Choosing second-hand items, such as clothing or electronics, contributes to a reduced climate impact by prolonging the use time of items. The Lifestyle test has a question on secondhand clothing and electronics which contributes on average to 31 % of all consumption of household goods in Finland (Eurostat, 2022). Users can indicate the frequency with which they purchase second-hand items (never, seldom, 50%, or always). The climate impact of clothes and electronics is reduced by 0%, 10%, 50%, or 80%, depending on the answer.

Pets

While pets bring joy and are often regarded as family members, it's essential to recognize that they also contribute to environmental impact through the consumption of natural resources, including food and various services and products. Given the diverse sizes of pets, ranging from tiny hamsters to horses, the Lifestyle Test asks about pet-related expenditures to calculate their associated GHG emissions.

EXIOBASE does not include all pet-related services in a single product category. Therefore, emission intensity was modeled using multiple EXIOBASE 3.8 categories.

Pet food is not listed as a distinct product in EXIOBASE, but is spread across broader food categories. For this study, it was mapped to “Food products nec”, “Meat products nec”, and “Products of vegetable oils and fats”, reflecting the typical composition of pet food. Pet medication does not appear as a separate product either. It was included under the broader product group “Chemicals nec”, which covers various chemical products including pharmaceuticals. Veterinary services fall under the broader “Health and social work” category in EXIOBASE. The data on the shares of spending on pet food, products, services, and medication are from AnimalhealthEurope.

Cottages

The summer cottages are assumed to be modestly equipped and basic heating is maintained year-round even when the cottage is not in active use. For cottages used throughout the year, it is assumed to be better equipped with proper insulation and an indoor toilet.

The earlier answer of the type of electricity used by the user was considered when calculating the GHG emissions from electricity. The climate impact of the cottage is divided between people using the cottage.

The carbon footprint of cottages includes construction and maintenance of the buildings, land use emissions and heating and electricity use. The emission intensities used are based on the calculation made by Koivula et al., (2019). The estimates of the average usage of cottages in summer and winter (days/year) are based on the statistics of the Free-Time Residence Barometer (Finnish Consulting Group Oy, 2016).

Action Plans

After completing the Lifestyle Test, users receive personalized recommendations for actions to reduce their carbon footprint. These are tailored to their responses—for example, if someone follows a fully plant-based diet, they won't receive suggestions related to reducing meat or dairy consumption. Each recommended action is grouped under a relevant consumption domain, indicating where the emissions reduction primarily occurs.

For most actions, the reduction impact is calculated based on the user's answers. For instance, in the transport category, users answer to their driving or flying habits enable personalized mitigation estimates for actions that reduce driving and flying. However, for actions where the test does not collect specific information about individual habits (like waste sorting or washing clothes at lower temperatures), the mitigation impact is assumed to be the same for all users and is based on the average reduction potential in that country.

Some actions, such as "Take your family or friends on a nature hike" or "Give the gift of time", do not have calculated reduction impact because they're impossible to reliably quantify. In addition to footprint-reducing actions, the test includes handprint actions such as "Crowdfund and invest in sustainable solutions" or "Vote for politicians who think sustainably". A handprint action refers to a positive action user can take that helps others or society reduce their environmental impact but does not directly reduce their own climate impact and thus these actions also do not have calculated reduction number. Actions, which do not have calculated reduction impact, are labelled with a light bulb icon instead of a specific reduction number.

Health benefits of actions

Many actions in the Lifestyle test not only reduce carbon footprints but also have other benefits, like improving health. The test shows health benefits for some actions, and the sources for the information are listed below.

Health benefits for the actions below are a result of independent research teams and provided by Luke and the Finnish Institute of Health and Welfare from their Finnish network for the connection between nature and health. In this network, nature refers to all life-supporting habitats and the organisms that live in them, and people's personal experience of nature is considered as an essential part of the relationship with nature.

Start a garden

Caring for plants supports mental well-being. Gardening also increases your everyday physical activity level and provides contact with beneficial microbes in the soil. Plus, homegrown products are healthy and nutritious.

- Review on community gardening and its effects on body mass index (Soga et al., 2017).
- Review of the health effects of allotment gardening on different aspects of health (Genter et al., 2015).

- Meta-analysis on the health impacts of gardening on various health aspects (Soga et al., 2017).
- Survey on health/well-being effects related to gardening (Chalmin-Pui et al., 2021)
- Review of gardening/farming and related interventions (Howarth et al., 2020).
- Review/meta-analysis on farming and health impacts (Panțiru et al., 2024).

Air-dry your laundry
As moisture evaporates from your laundry, it increases indoor humidity, improving air quality, especially if the indoor air at your home tends to be dry (Wolkoff, 2018).

Commute to work by bicycle
Regular physical activity benefits many aspects of your health. Studies show that commuting by bike tends to reduce the number of sick leave days.
- Review on the health effects of active commuting (Saunders et al., 2013).
- Review on the effects of active commuting on physical health (Wanner et al., 2012).
- The relationship between commuting method and absenteeism (Andersen et al., 2023).
- Active commuting is less stressful than driving or using public transport (Ussher et al., 2024).
- Qualitative study on bike commuting that mentions social benefits (Martin et al., 2019).

Reduce driving
Even short bouts of physical activity are good for your health. Choosing walking or cycling routes near green spaces or water offers an added benefit—nature exposure, which can help reduce stress and boost your mood.
- Physical activity recommendations by the UKK Institute (UKK Institute, n.d.).
- WHO physical activity recommendations (World Health Organization, 2020).
- Physical activity recommendations and healthy life years (Kujala et al., 2024).

Increase daily physical activity
Every bit of physical activity counts. People who meet the physical activity recommendation by WHO tend to have one to two more years of healthy life compared to those who are mostly inactive.
- Physical activity recommendations by the UKK Institute (UKK Institute, n.d.).
- WHO physical activity recommendations (World Health Organization, 2020).
- Physical activity recommendations and healthy life years (Kujala et al., 2024).

Hobbies near home
Staying active near your home makes it easier to keep up with regular exercise. Visiting green spaces or waterways also provides stress relief and improves mood.
- Physical activity recommendations by the UKK Institute (UKK Institute, n.d.).
- WHO physical activity recommendations (World Health Organization, 2020).
- Physical activity recommendations and healthy life years (Kujala et al., 2024).

Switch from car to e-bike
All physical activity is good for you! Research shows that cycling is less stressful and more socially engaging than driving.
- Active commuting is less stressful than driving or using public transport (Ussher et al., 2024).
- Active commuting and well-being (Sahlqvist et al., 2013).
- Cycling is also more social than driving (Martin et al., 2019).

When moving, think about the location

Where you live also affects your health. In addition to short commutes, consider having an easy access to nearby nature. A green living environment supports health in many ways.

- Shorter commutes are associated with better mental health (Nieuwenhuijsen et al., 2016).
- Shorter commutes are associated with better mental health (Chatterjee et al., 2022).
- Shorter commutes are associated with physical symptoms (Smith et al., 2016).
- Greenness of residential area is associated with a lower risk of diabetes and mood disorders (James et al., 2021).
- International review on green environments and type 2 diabetes (Mavoa et al., 2023).
- International review on green environments and mental health (Gascon et al., 2015).

Travel by train on vacation

Train travel means no stress about traffic jams, and you often get to enjoy calming scenery along the way. Plus, you can stretch your legs during the journey.

- Perspectives and review on so-called slow travel (Dickinson et al., 2023).
- Viewing nature vs. urban images and mood/brain responses (Kjellgren & Buhrkall, 2010).
- Meta-analysis comparing the effects of viewing nature images on mood (McMahan & Estes, 2015).
- Effects of vacations on perceived health and well-being (Nawijn, 2011).

Travel locally

Spending time in nature has versatile benefits for health and well-being.

- Nature visits and depressive symptoms, review and meta-analysis (Shanahan et al., 2019).
- Nature visits and mood (McMahan & Estes, 2015).
- Nature visits and social benefits (Korpela et al., 2023).
- Association between vacations and psychological well-being in general (Chen et al., 2023).
- Meta-analysis on the duration of physical activity in green spaces and effects on mood (Barton & Pretty, 2010).
- Classic theory on the mechanisms of restorative nature environments (Kaplan & Kaplan, 1989).

Spend a weekend vacation at home

On weekends or days off, there is enough time to take a longer trip to a nearby nature destination, which helps to detach from everyday routines.

- Nature visits and depressive symptoms, review and meta-analysis (Shanahan et al., 2019).
- Nature visits and mood (McMahan & Estes, 2015).
- Nature visits and social benefits (Korpela et al., 2023).
- Association between vacations and psychological well-being in general (Chen et al., 2023).
- Meta-analysis on the duration of physical activity in green spaces and effects on mood (Barton & Pretty, 2010).
- Classic theory on the mechanisms of restorative natural environments (Kaplan & Kaplan, 1989).

Vacation by cycling

Cycling is an excellent form of physical activity. By choosing a route along waterways or green areas, you get to enjoy nature and its health benefits.

- Literature review on cycling tourism (Ritchie, 2022).
- Nature visits and depressive symptoms, review and meta-analysis (Shanahan et al., 2019).
- Nature visits and mood (McMahan & Estes, 2015).
- Nature visits and social benefits (Korpela et al., 2023).
- Association between vacations and psychological well-being in general (Chen et al., 2023).
- Meta-analysis on the duration of physical activity in green spaces and effects on mood (Barton & Pretty, 2010).
- Classic theory on the mechanisms of restorative natural environments (Kaplan & Kaplan, 1989).

Dip in a lake or the sea

Swimming in natural waters is often more restorative than in outdoor pools. Open water swimming enhances mood and alleviates stress.

- Effects of swimming in different outdoor environments on mood and recovery (White et al., 2024).
- Review on open water swimming and well-being (Britton et al., 2023).
- Benefits/risks of open water swimming (Massey et al., 2022).

Participate in a month of a plant-based diet challenge

A plant-based diet can reduce the risk of conditions like coronary artery disease. Just be sure to replace meat with a nutritious alternative!

- Review and meta-analysis on vegetarian diet and heart health (Dinu et al., 2019).

Carry your own water bottle

Tap water is the best choice for hydration. Also, pay attention to the material of your bottle—glass or metal is a healthier option than plastic, which may release microplastics.

- Finnish nutrition recommendations (National Nutrition Council, 2020).

Join or Start a Local Food Co-op

Choosing local food helps you understand the natural cycle of harvest seasons and food production.

- Article on food co-ops in Finland (Koskinen et al., 2022).

Use a one-plate approach

Taking only one plate of food at a time makes it easier to follow balanced meal guidelines, which promotes portion awareness and variety in your meals. The one plate approach also reduces food waste.

- Finnish nutrition recommendations (National Nutrition Council, 2020).

Pick berries and mushrooms

Berry picking and mushroom foraging provide physical activity and nutrient-rich food as well as the health benefits associated with time spent in nature.

- Freshly gathered forest produce is rich in beneficial microbes, and by preserving them, you can enjoy their benefits year-round. Roslund et al. (2020).
- Effects of fruit handling on their microbiota diversity (Wang et al., 2022).
- Contact with natural microbiota in children, intervention (Roslund et al., 2021).
- Finnish nutrition recommendations on berries and mushrooms (National Nutrition Council, 2020).
- Bioactive compounds and antioxidant activity in different types of berries (Seeram, 2010).
- The genetic aspects of berries: from field to health (Häkkinen et al., 2015).

Eat potatoes and barley instead of rice

Locally grown potatoes and whole-grain barley contain more nutrients than white rice.
- Finnish nutrition recommendations (National Nutrition Council, 2020).

Go to the library

Just 30 minutes of reading a day has been linked to a longer lifespan. Taking part in library activities can also strengthen the sense of community. You can often borrow equipment for outdoor activities from libraries.

- Association between reading and lifespan (Bavishi et al., 2016).
- Associations between library use and health and well-being (Vakkari et al., 2024).
- The role of libraries in health promotion (Varheim, 2018).

Give the Gift of Time
Spending quality time together fosters a sense of connection. Activities like nature trips benefit physical, mental, and social well-being.

- Parent-child communication quality in nature vs. indoors: Research indicates that children are significantly more talkative in natural environments compared to indoor settings. Parent-child connected communication episodes are also longer in nature, with both parties producing a higher number of responses (Ward Thompson et al., 2018).
- Nature visits and perceived quality of relationships and mental health: Spending time in nature is associated with improved perceptions of social relationships and mental health (Korpela et al., 2023).
- The significance of nature-related memories for mental health: Memories of favorite natural places can support mental health by providing a sense of restoration and well-being (Ratcliffe, Subiza-Perez, & Korpela, 2020).

Spend Time in Nature
Being in nature improves mood, enhances sleep quality, and strengthens the immune system. Regularly spending time in nature supports long-term health and mental well-being.

- Nature, social, and psychological health: Exposure to natural environments has protective effects on mental health outcomes and cognitive function (Zylstra et al., 2014).
- Nature and depressive symptoms, meta-analysis: A meta-analysis found that nature exposure is associated with reduced depressive symptoms (Shanahan et al., 2019).
- Nature visits and mood, meta-analysis: Spending time in nature is linked to improved mood and emotional well-being (McMahan & Estes, 2015).
- Green environments and sleep, review: Exposure to green spaces is associated with improvements in both sleep quality and quantity (Twohig-Bennett & Jones, 2018).
- Duration of nature visits and perceived health: Spending at least 120 minutes a week in nature is associated with better health and well-being (White et al., 2019).
- Nature visits, heart rate variability, and mood, review: Nature-based interventions can improve mood and reduce stress, with effects on heart rate variability (Yao et al., 2024).
- Nature visits and recovery, including physiological aspects: Viewing natural environments positively affects recovery of autonomic nervous system function (Zhang et al., 2024).
- Repeated nature visits and perceived health, 18-country survey: Regular nature visits are associated with lower prevalence of common mental health disorders (White et al., 2019).
- Meta-analyses on nature connectedness and well-being: Individuals more connected to nature tend to experience more positive affect, vitality, and life satisfaction (Capaldi et al., 2014).
- Nature contact and immune system, interventions: Time spent in nature has substantial beneficial effects on the immune system, enhancing positive indicators and reducing negative ones (Li, 2010; Roslund et al., 2020, 2021).

Average carbon footprint in Finland

On the carbon footprint results page, users can compare their individual results with the national average carbon footprint. The national average is calculated using the same data sources and methodology as those used in the Lifestyle Test. The national average footprints cover the same categories as the test: living, personal transport, food and other consumption (purchases, cottages, and pets) (Table 1).

Additional data sources

Some additional data sources are used to calculate the average Finnish carbon footprint. These are not used in the Lifestyle test because the test directly asks the consumption amounts, for example driven kilometers or portions of meat and beverages.

Transport

For private car use and bus travel, passenger-kilometres (p-km) are from Traficom, 2023. Train, motorcycle, ferry and bicycle data from the Finnish Transport Infrastructure Agency (2024). Air travel data is based on figures from the International Civil Aviation Organization ARC 2022 Report (ICAO, 2024). Whenever possible, the reported figures exclude business travel to better reflect personal lifestyle emissions.

Food

Food consumption amounts are based on the Balance Sheet for Food Commodities published by the Natural Resources Institute Finland (2023). Household food waste amount is from the Food Waste Index Report 2024 (UNEP 2024).

Table 1. The average Finnish carbon footprint (kgCO2e/person/year).

TOTAL	**7490**
Living	1200
Transportation	2990
Food	2050
Other consumption	1240

Sources

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