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# BUILT ENVIRONMENT AS A DETERMINANT OF PHYSICAL ACTIVITY AND HEALTH IN DAILY LIFE.

What is taught in Swiss architecture, urbanism,  
and landscape architecture degree programs?

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«There is no ELEVATOR to success...

You have to take the STAIRS»

- Zig Ziglar

## Abstract

**Introduction** – Noncommunicable diseases (NCDs) are the leading cause of mortality in the world. Regular physical activity (PA) reduces the risk of NCDs. And the way our built environment (BE) is designed has an influence on our PA behavior. This means that the professionals who plan our BE have an impact on our health – but are they aware of their impact on NCDs? Is this impact discussed during studies? To answer this question, this master thesis analyzed what is taught or not taught about the association of BE, PA and health in Swiss architecture, urbanism, and landscape architecture degree programs.

**Methods** – A qualitative questionnaire study of architecture, landscape architecture, and urbanism degree programs (DPs) in Switzerland was conducted. Those responsible for all 33 DPs were asked to indicate if a course exists which teaches the relationship between the BE, PA and health, or about public health or epidemiology. If this was the case in any course, further information was requested to prove if this relationship is really discussed.

**Results** – Thirty DPs were included in the analysis. Five out of the seventeen architecture DPs indicated to teach about the relationship between BE, PA and health, but in none of them could this relation be confirmed. All four landscape architecture DPs indicated to teach about this association; in one DP this association could be confirmed, and one DP will integrate it by next year. All ten urbanism DPs indicated to integrate the full relation between BE, PA and health in their programs; this could be confirmed for three of the ten investigated DPs.

**Discussion** – Out of 30 analyzed DPs, 18 indicated to teach the relationship between the BE, PA and health. However, this could only be confirmed for five of these eighteen DPs. In most of the other courses, the influence of PA on health is not integrated. The planning of movement-friendly environments is an underutilized application area for the promotion of PA and health. To further promote this concept, the existing knowledge needs to be bundled, and interdisciplinary cooperation at the universities needs to be encouraged to include this concept in the DPs.

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## **Abbreviations**

<i>BE:</i>	<i>Built environment</i>
<i>DP(s):</i>	<i>Degree Program(s)</i>
<i>MAS:</i>	<i>Master of Advanced studies</i>
<i>MVPA:</i>	<i>Moderate to vigorous physical activity</i>
<i>NCD:</i>	<i>Non communicable disease</i>
<i>PA:</i>	<i>Physical activity</i>
<i>WHO:</i>	<i>World Health organization</i>

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## 1. Introduction

Noncommunicable diseases (NCDs) such as cardiovascular diseases, cancer, and chronic respiratory diseases are the leading cause of mortality in the world (Mendis & World Health Organization, 2014). The World Health Organization (WHO) estimates that out of ten deaths, six are attributable to noncommunicable conditions (World Health Organization, 2008). The same is observed in Switzerland, where cardiovascular diseases are the number one cause of mortality (Office fédéral de la statistique, 2018).

It has also been shown that regular participation in physical activity (PA) reduces the risk of coronary heart diseases, stroke, diabetes, and colon and breast cancer. Hence, PA can contribute to the decrease of NCDs (Reiner et al. 2013; Physical Activity Guidelines Advisory Committee, 2008). For this reason the WHO declared the promotion of physical activity a priority in public health in 2004 (World Health Assembly and World Health Organization, 2004). To promote PA, the WHO published the recommendations on PA for health in 2010 (World Health Organization, 2010) – these were also adopted by Switzerland. According to recommendations, adults should be physically active for at least two and a half hours per week at medium intensity, or one and a quarter hour at high intensity (Office fédéral du sport OFSPO, 2013). Yet the numbers in Switzerland show that 22% of Swiss adults do not meet these recommendations (Markus Lamprecht et al., 2020). Physical inactivity not only has a negative impact on the health and quality of life of each inactive individual, but it also has a major financial impact on our society. Mattli et al. (2014) estimated the direct cost of physical inactivity in Switzerland in 2011 to be CHF 1.165 billion, from which 29% of these costs came from cardiovascular diseases. Indirect costs are estimated to be CHF 1.368 billion, which means that the overall medical cost of physical inactivity in 2011 was an estimated CHF 2.533 billion. This corresponds to 3.9% of the overall Swiss health care expenditure and has increased since the last measure in 2001 (Mattli et al., 2014).

Some studies show that lesser physical activity than that recommended by the WHO still has a positive effect on health (Wen et al., 2011). Everyday activities such as walking to the bus stop, shops, or to work can still contribute to positive health outcomes (Frank et al., 2006).

## **1.1 Built environments and physical activity**

The way the built environment (BE), like streets, walking lanes, and buildings, is designed can influence our daily physical activity (Sallis et al., 2016) and can thereby help us reach activity recommendations. Built environment (BE) is a large term and different definitions are used in the literature. According to Handy et al. (2002, p.65), “the built environment comprises urban design, land use, the transportation system and encompasses patterns of human activity within the physical environment”. Basically, everything that is built by humans can be referred as BE. Using data from 14 cities around the world, Sallis et al. (2016) documented in a cross-sectional study that the design of the urban environment contributes to PA. This association between PA and BE could also be shown in several reviews (Handy et al., 2002; Humpel et al., 2002; Wendel-Vos et al., 2007).

The environmental determinants which were shown to be the most powerful for enhancing PA were urban density, high walkability, mixed land use, active transport infrastructure, access to green spaces, and good environmental quality (Grob et al., 2009; Smith et al., 2017; Van Holle et al., 2012). These determinants were often proven in studies targeting walking (Saelens & Handy, 2008) and cycling (Fraser & Lock, 2011), because these two activities are the most common ones. “Among all physical activities walking and cycling have been receiving greater attention from both civic and academic communities lately as a means to boost individuals' physical activity levels” (Wang et al., 2016, p.2). Brownson et al. (2000) described three reasons for their popularity: they are suitable for all age groups, the movement intensity can be chosen individually, and these activities are also accessible for people with a low socio-economic status. Hajna et al. (2015) investigated the link between walking and neighborhood walkability, where walkability is the degree to which a neighborhood is walking friendly. Walkability can also be characterized by the five C's: Connected, convivial, conspicuous, comfortable and convenient (Transport for London, 2005). People living in highly walkable neighborhoods walk more than people in less walkable neighborhoods (Hajna et al., 2015). Another study showed that the environmental score was positively associated with walking to work. The environmental score was based on 18 different neighborhood characteristics such as traffic or visual aesthetics (Craig et al., 2002).

Most studies focus on adults, but there is substantial evidence that BE influences PA throughout the whole lifespan. The same association for adults could be shown for children (Christian et al., 2015), youth/adolescents (Ding et al., 2011; Van Hecke et al., 2018), and older adults (Kerr et al., 2004; Moran et al., 2014).

The weak point of most of the reviews is that the results are based on cross-sectional studies and that some confounders were not always considered. As an example of a confounder we can consider the neighborhood self-selection. People who tend to be more active choose an activity-friendly neighborhood, whereas the opposite is the case for people who are less active. Although not many studies were adjusted for neighborhood self-selection, there is a review from McCormack & Shiell (2011) mentioning that the BE still affects PA after adjusting it to neighborhood self-selection. Even longitudinal studies, where the direct influence of the BE on PA was investigated, prove a positive correlation (Kärmeniemi et al., 2018).

When BE has the potential to increase daily PA it is evident that it also improves our health (Sallis et al., 2012). Whether the effect of walkability (Renalds et al., 2010) or urban density (Sturm & Cohen, 2004) on health was investigated, a direct link can always be proven. According to these reviews, BE has a positive influence on chronic diseases such as obesity, hypertension, and diabetes. This effect has also been outlined by more recent literature using only longitudinal studies (Chandrabose et al., 2019). In their review, Chandrabose et al. (2019) found strong evidence for a longitudinal relationship between walkability or urban sprawl and type 2 diabetes, obesity, and hypertension. As for physical activity, the BE also plays a role in health across the whole lifespan (Nathan et al., 2018).

Most of the published reviews' evidence relies on literature from North America and Australia. Given the environmental differences across continents, the question remains – are these results also applicable to European cities? Van Holle et al. (2012) summarized in a review the European-specific relationship between PA and BE. They concluded that most of the findings from European studies are comparable to North American/Australian findings.

## **1.2 The impact of BE on PA in Switzerland**

Although worldwide literature proves the effect of the BE on PA, little is known about this correlation in Switzerland. Schmid (2006) investigated the relationship between BE and PA in a walkability study of two different neighborhoods in

Zurich, Switzerland. The first, Seefeld, shows a high walkability score and the second, Witikon, a low one. According to Schmid (2006), the walkability score is composed of different features, such as route network connectivity, resident density, proximity to shops and services, walking and cycling infrastructure, and security aspects. Nevertheless, no difference could be shown in the overall walking time per week between the two neighborhoods. It seems that the total daily walking time is not only influenced by the BE. Other factors such as age and the attitude of the residents towards walking seem to have a bigger influence. However, in Seefeld people walked 35 more minutes per week to or from their homes than in Witikon. The data shows that the time spent “walking from home” is linked to the BE. In a second part, Schmid (2006) showed that the chance of being active for half an hour per day increased by 13% with every destination (e.g. shops, public services) reachable within a ten-minute radius. Furthermore, the analysis revealed that there is a positive correlation between the attractiveness of BE and the time spent on walks. The author concludes that there is a link between the walking time and BE. The most important determinants of the BE are density, mixed land use, and connectivity of walking routes. (Schmid, 2006).

Another study conducted in three Swiss Alpine communities revealed that limiting motorized transportation and promoting active transportation can increase daily moderate intensity physical activity. Daily moderate intensity physical activity and transportation information were compared between Crans-Montana, Verbier, and Zermatt. Residents of Zermatt have no access to motorized traffic. In Zermatt, 44% of the population was sufficiently active. In comparison, only 36% in Crans-Montana and 33% in Verbier reached the recommendations for daily PA. This significant difference is explained by the human powered transport which is more prevalent in Zermatt (Thommen Dombois et al., 2007).

On the database of the Swiss Microcensus on Traffic Behaviour 2005, which also includes a partial study on PA, Schad H. et al. (2008) analyzed the correlation between features of the BE and PA. PA was separated into moderate PA (participation in and duration of walking and cycling) and vigorous PA (duration of physical activities that cause people to perspire or be short of breath). The authors mention the importance of categorizing PA this way when comparing it to BE. “The contribution of the built environment for the statistical explication of people’s behavior was generally larger with regard to walking and cycling than with vigorous PA” (Schad H. et al, 2008). Population density positively correlates

with participation in walking and cycling, but negatively correlates with duration of vigorous PA. Furthermore, walking had a negative correlation with the availability of cars and a positive correlation with the possession of season passes for public transport. Cycling participation is more probable in higher density resident areas, residences close to sport facilities, apartments with a garden or balcony, and with the possession of public transport passes and low availability of cars. The use of cycling is common in urban areas that are less central with regard to the city center.

Walking and cycling is a very common activity in Switzerland. These activities mitigate up to 1200 cases of cardiovascular diseases every year, and due to the reduction the mortality, the Swiss population gains almost 125,000 years of life (Ecoplan & Infrac, 2014). Due to the health benefits of human powered or active mobility, CHF 1.35 billion may have been saved in Switzerland in 2015 (Ecoplan & Infrac, 2019). In their calculations, the authors considered the fact that health benefits of human powered mobility are up to ten times higher for people who are never or rarely physically active, than for people who are active on a daily basis. For people who are often active, the effect of human powered mobility on the mortality rate is not that significant (Ecoplan & Infrac, 2019).

In the Swiss SOPHYA-study, conducted with children and adolescents, Bringolf-Isler et al. (2019) assessed the objectively measured and perceived environment with accelerometer-based PA and cycling. "A high walkability tended to be associated with more moderate to vigorous PA (MVPA) and cycling in youth from low socio-economic background (SES) areas" (Bringolf-Isler et al., 2019). For youth living in a high SES area, no correlation between walkability and MVPA was found. The reason could be, according to Bringolf-Isler et al. (2019), that they have the financial means to be more active in sport clubs than their peers who spend more time doing unstructured PA. A positive relation was found between childrens' MVPA and parents' perceived access to green spaces, but not with the objectively measured green space access. The authors justified the difference by noting the importance of the quality of the green space. Another study (Bringolf-Isler et al., 2018) investigated the relationship between BE and sedentary behavior time in Swiss children. Neighborhoods with more dead ends in urban areas, low main street density, and green spaces were less likely to exhibit prolonged SBT in children (Bringolf-Isler et al., 2018). The authors concluded that in order to reduce sedentary behavior, land use planning should objectively consider measured environment (Bringolf-Isler et al., 2018).



The potential of a movement friendly environment as an intervention tool to promote PA was discovered in Switzerland around 20 years ago. Fischer et al. (2018) analyzed over 100 projects promoting PA through the BE. Two thirds of the projects belong to four national programs:

- “Strukturelle Bewegungsförderung in der Gemeinde / Gemeinde bewegt” (Structural PA-promotion in communes / moving commune)
- “Nachhaltige Quartiere” (Sustainable neighborhoods)
- “Gemeinde Sportanlagenkonzept GESAK” (Communal sport facility concept)
- “Projets urbains” (Urban projects)

(Fischer et al., 2018).

“Structural PA-promotion in communes” is a program supported by many different organizations and federal offices. From 2000 to 2008 a collection of best practices was created by a handful of communes. After this project, a pilot program in the canton of St. Gallen commenced. The project “moving commune” helped ten different communes in St. Gallen implement structural environmental changes that promote PA. The communes pay specific attention to movement-friendly and safe-traffic infrastructure and public spaces. This project still exists in the canton St. Gallen (Zihlmann et al., 2013).

The program “sustainable neighborhoods” was put in place by the “Office fédéral du développement territorial” and the “Office fédéral de l’énergie”, and supported communes in the development of sustainable neighborhoods. A movement-friendly environment is part of a sustainable neighborhood, with regard to mobility, use of space, and safety. However, due to the wide range of sustainability initiatives, the role of movement-friendly environment varied in importance (Fischer et al., 2018). An example of this program is the Lausanne neighborhood “Plaines-du-loup”. As part of the ambitious project “Méthamorphose” of the city of Lausanne, which aims to build two sustainable neighborhoods and new sport facilities, the interdisciplinary project “Métrasanté” was created. This project, initiated by the University Medical Polyclinic, aimed to promote movement and health in the urban project “Méthamorphose” (Bize et al., 2015).

The aim of the communal sport facility concept was the development of “Bewegungsräume” (movement-spaces), creating spaces for movement in places such as school facilities, neighborhoods and living environments.

Financial aid was given if a project took into account movement spaces for the whole population, from children to seniors (Fischer et al., 2018).

The focus of the urban projects was to increase the quality of life of the inhabitants by improving their environment. Measures for a movement-friendly environment were included as a part of the development of the neighborhoods (Fischer et al., 2018).

In 14 projects they identified the potential factors of success. The main inclusion criteria of those chosen out of the 111 projects were:

- The promotion of PA in residential environments and the promotion of active mobility need to be an important part of the project and mentioned in the aims of the project.
- Structural changes of the environment have to be a measure of the project.
- Documentation and evaluation: The different steps of the project need to be documented and an evaluation of the project needs to be present.

Projects which focused on vulnerable populations, such as elderly people, children, people with dis-/abilities, people with a low socio-economic status, and immigrants were preferred (Fischer et al., 2018).

The authors concluded that “a physical activity promoting environment is a promising application area for the promotion of PA and health” in Switzerland (Fischer et al., 2018, p.4).

As part of the program “structural PA-promotion in communes” Grob et al. (2009) summarized the existing Swiss literature on the influence of BE on PA and concluded that similar relations as those shown in North American studies can be found in Swiss literature. However, the relation seem to be slightly weaker in Switzerland. Grob et al. (2009) underlined that there are only few Swiss studies investigating this topic, and that more research needs to be done to prove the transferability of findings from international studies to Switzerland.

### **1.3 Active design in buildings**

The studies presented so far mainly focused on the BE around houses, without considering the BE inside buildings, such as stairs. Although many people spend a lot of time in buildings, little is known about how the design of buildings influences PA. There is literature showing that the site selection and site design

of the building, the building programming, and the building elements affect PA (Zimring et al., 2005). Occupants are more active if the building is on a site where destinations, such as shopping or eating establishments, are near and well connected with pedestrian pathways. The design of the building's circular system or the provision of activity-designed spaces increases PA. Individual building elements such as stairs, exercise rooms or showers promote PA as well (Zimring et al., 2005). A health-promoting office building can decrease workplace sitting time, increase daily standing time (Engelen et al., 2016; Jancey et al., 2016) and even reduce lower-back pain (Engelen et al., 2017). Another study shows that worksite health promotion seems to be more effective if environmental changes are combined with policy changes in a multicomponent worksite health promotion program. For environmental changes limited evidence was found, and more research needs to be done (Kahn-Marshall & Gallant, 2012).

Although the evidence base remains limited, some studies show the association of active design and PA in residential settings. People who moved to an active design house showed improvements in stair use, and a higher percentage of residents achieved the recommended PA goals one year after moving in (Garland et al., 2018). Another study conducted in a low-income area supports these findings (Tannis et al., 2019). Living in an active design building can enhance low-income residents' stair use and PA; mean daily steps increased one year after moving from an elevator building into active design houses in Brooklyn, New York (Tannis et al., 2019).

Furthermore, some studies point out the association between stair use and building design. Nicoll (2007) measured the stair use in ten academic buildings in a cross-sectional study using infrared monitors. Eighteen environmental variables were measured. Eight variables such as travel distance from stairs to the nearest entrance, and elevator or staircase accessibility were associated with stair use. The analysis indicated that three measures explained 53% of the stair use: the percentage of building area attributed to each stair, the visibility (the extent to which a stair can be seen from other interior spaces within the building), and the average number of turns from the building entrance. In another study Nicoll & Zimring (2009) investigated the use of and attitude towards stair use in a building where the main elevators stop only at every third floor (skip-stop elevators). Depending on the destination floor, users need to walk up or down nearby stairs that have been made open and appealing. The skip-stop stair was used 33 times more than the enclosed stair of the traditional elevator core.

According to the authors, the skip-stop feature can successfully increase stair use in workplaces. Increasing the stair use by an active building design could be an important pillar in promoting health programs inside or outside of buildings.

### 1.3.1 Stairclimbing

Stair climbing is an activity with a higher energy cost than normal walking. Bassett et al. (1997) showed that the gross energy cost of stair climbing in the laboratory is 8.6 Met – 8.6 times more energy than spent in the resting state. The same effect can be observed on public staircases. A study using a local public access staircase measured the energy expenditure to be 9.6 times higher than in the resting state for climbing and 4.9 times higher for descending (Teh & Aziz, 2002). Beside increasing the energy expenditure, stair climbing also has positive effects on different health parameters. Studies have shown that a stair climbing program can provide considerable cardiovascular health benefits in previously sedentary young women (Boreham et al., 2000), reduce arterial stiffness, blood pressure and increase leg strength in stage 2 hypertension postmenopausal women (Wong et al., 2018), and improve the VO<sub>2</sub>max and the isokinetic strength in middle-aged females (Loy et al., 1994). Stair climbing not only provides benefits for sedentary and older women; Stenling et al. (2019) reported better cognitive performance after a stair-climbing interval in healthy young adult males. Stair-climbing intervals could also be a practical approach to increasing energy in daily life in healthy young adults (Stenling et al., 2019).

Taking these effects into consideration, it is no surprise that researchers tried to include stairclimbing as an easy lifestyle intervention to reduce cardiovascular disease risk at the workplace. Meyer et al. (2010) observed after a twelve week hospital stair use campaign, with posters and stickers at the point of choice between stairs and elevators, improved fitness, body composition, blood pressure and lipid profile in asymptomatic individuals with an inactive lifestyle. Already in the 90s it was known that motivational signs positively influence stair use at the point of choice between stairs and elevators in public settings, such as train stations, shopping malls or airports (Blamey, Mutrie, and Aitchison 1995; Andersen 1998; Russell and Hutchinson 2000). Kerr et al. (2004) suggested that physical improvement to a stairwell and music increase the stair use at the worksite. Although it sounds promising, Eves and Webb (2006) caution against these results, because not all of the studies distinguish stair climbing from stair descending. Some studies showed an improvement in stair use, but only because

people descended more than before. As for stair descending, the energy cost is not much higher than for slow walking (Bassett et al., 1997; Teh & Aziz, 2002). Furthermore, some studies on worksites even showed a decrease in stair use after an intervention. This may be due to the height of the building or the behavioral context of the pedestrian movement (Eves & Webb, 2006; Puig-Ribera et al., 2019). The authors also highlighted that the positive results of stair climbing campaigns cannot necessarily be translated to the worksites.

Bellicha et al. (2015) agreed and cautioned against assuming stair climbing campaign results would be the same for worksites. Interventions in public settings are more effective than at worksites, and environmental interventions are more effective when motivational and directional signs are combined. Environmental studies should also take in account the safety of the people using the stair. Poor lighting, for example, leads to stair falls (Thomas et al., 2020). Another study showed that young participants' stair gait performance was affected by talking on the phone. The participants reduced motor control cost and slowed down their gait while using the stairs on the phone (Di Giulio et al., 2020). Nonetheless, when these risks are taken into consideration, stair climbing can be a useful tool to improve daily PA.

#### **1.4 Governmental programs**

More and more governments see the construction of an activity-friendly environment as an opportunity to increase people's PA and improve health. In a report from the World Health Organization's regional office for Europe, European land planning experts discussed the possibilities and challenges of using spatial determinants for health in urban settings. PA, social impacts, air pollution, noise exposure, and unintentional injuries were defined as determinants of health associated with the built environment. The experts of the WHO see PA as one of the five determinants associated with the BE. Due to the complex urban-human-health interactions, and often competing interests (social, economic and environment), the experts called for an integrated approach to reach the goal of an active-friendly environment. More tools targeting this topic should be developed for healthy urban planning (WHO Europe, 2010).

In France, the national prevention plan of physical and sport activities (PNAPS) was put in place to respond to the growing challenge of physical inactivity in France. The commission "Prevention, Sport and Health" analyzed the current

situation and published a strategy for the PNAPS. The commission was convinced of the effect of the BE on PA and integrated this topic into the strategy. Based on existing projects they gave some examples of how to build an environment that promotes PA. Furthermore, they recommended taking public health into account in public land-use and urban planning policies, and promoting non-motorized mobility (Commission Prévention, Sport et Santé, 2008).

A recent publication of the Danish Health Authority (2020) summarized the national and international literature on how the urban environment impacts PA behavior with special regard to urban design and infrastructure, urban green areas, and school settings. Another focus was on how the environment encourages different age groups to be physically active. The findings should provide knowledge to the municipalities and “make it easier for the decision-makers to take informed decisions about designing the urban environment to encourages everyone to be physically active, regardless of age and social background” (The Danish Health Authority, 2020, p.5). The goal of this is to make the built environment more conducive for physical activity for Danish citizens (The Danish Health Authority, 2020).

The Royal Institute of British Architects investigated in a city health check how health problems relate to the urban environment in the nine most populated cities in England. The authors surveyed residents in each of these cities and then made practical recommendations to local authorities and developers about actions they could take. Two main outcomes were observed. Firstly, a clear link between land use and public health was uncovered. Secondly, it was not the quantity of streets and parks that encouraged more walking, but the quality (Royal Institute of British Architects (RIBA), 2013). In contrast to most governmental publications, these authors did not limit the urban environment to streets, parks and open spaces, but also considered in small part the design of buildings. With their report, the authors wanted to show “how architects and urban designers can play a role in promoting better health” (Royal Institute of British Architects (RIBA), 2013, p.8). In fact, only a small amount of national policies or programs which target the promotion of PA by BE design consider individual building design. Measures are often only taken on a spatial-planning scale and do not enter the buildings.

One exception is the New York Active Design Guidelines. Based on the latest academic research of 2010, the Active Design Guidelines provide “architects and urban designers in New York City and beyond with a manual for creating healthier buildings, streets, and urban spaces. Active design is environmental design that

encourages stair climbing, walking, bicycling, transit use, active recreation, and healthy eating” (City of New York, 2010 p.12). These guidelines distinguish urban design from building design. It shows how architects can help to incorporate PA into the daily routines of building occupants. The following measures summarize the findings of the authors:

- “Increase stair use among the able-bodied by providing a conveniently located stair for everyday use, posting motivational signage to encourage stair use, and designing visible, appealing and comfortable stairs;
- Locate building functions to encourage brief bouts of walking to shared spaces such as mail and lunchrooms, provide appealing, supportive walking routes within buildings;
- Provide facilities that support exercise such as centrally visible physical activity spaces, showers, locker rooms, secure bicycle storage, and drinking fountains;
- Design building exteriors and massing that contribute to a pedestrian-friendly urban environment and that include maximum variety and transparency, multiple entries, stoops, and canopies” (City of New York, 2010 p.13)

## **1.5 Swiss governmental strategies**

The presented programs are only a small selection of existing worldwide programs. Many countries try to adopt a policy that promotes the construction of PA friendly environments. The same can be observed in Switzerland.

### **1.5.1 Sustainable Development Strategy**

“The Sustainable Development Strategy 2016–19 sets out the Federal Council’s policy priorities for sustainable development in the medium to long term. It also lists the action that the Confederation will take to implement this Strategy during the legislative period” (Swiss Federal Council, 2016, p.4). The action plan to implement this strategy contains nine action areas; in two of them the association of BE, PA and health is mentioned. The first of the two is ‘action area two (urban development, mobility and infrastructure)’, in which the sixth goal focuses on providing space for sport and exercises: “The necessary infrastructures and spaces to meet sport and exercise needs are available both within and outside

urban areas” (Swiss Federal Council, 2016, p.20). Another goal of this action area aims to increase the proportion of total traffic that is non-motorized, for example cycling and walking traffic. The second, ‘action area nine (health)’, wants to put greater emphasis on preventing illness and promoting health than on curative medicine. In this ‘action area’, the environment is defined as one of the determinants influencing a person’s state of health. And the first goal of this area aims to prevent non-communicable diseases (Swiss Federal Council, 2016). To achieve this goal, the Federal Council set up the national strategy for the prevention of non-communicable diseases (NCD strategy).

### 1.5.2 National Strategy for the Prevention of Noncommunicable Diseases (NCD strategy)

“In Switzerland 2.2 million people suffer from noncommunicable diseases” (Schmid, 2006). To respond to this challenge, the Swiss federal and cantonal government drew up a national strategy for the prevention of noncommunicable diseases (NCD strategy). Four risk/protective factors that influence health are outlined in this strategy. The four risk/protective factors are alcohol and tobacco consumption, PA, and diet. The aim of this strategy is to steer the impact of these four factors towards a healthy lifestyle. In order to reach this goal, seven action fields are defined. One of these is coined “optimizing the framework conditions.” This action field suggests that a health-promoting environment should be built to enable the Swiss population to lead a healthy and active lifestyle. “Make the easy choice the healthy choice” is the key sentence of this action field (Federal Office of Public Health, 2016).

The Swiss Federal Council even made this strategy one of the five priorities in their Health2020 policy, which aims to eliminate weaknesses in the Swiss health care system, and to stand against rising costs. One of the main goals of this policy is to secure the quality of life of the population by, among other things, focusing more on preventing non-communicable diseases (Federal Office of Public Health (FOPH), 2013).

The following Health2030 policy “expands and updates the existing Health2020 strategy” (Federal office of public health (FOPH), 2019, p.10) and plans to “focus on the four most pressing challenges:

- Technological and digital change



- Demographic and social trends
- Preserving high-quality and financially sustainable healthcare provision
- Positively influencing the determinants of health”

(Federal Office of Public Health (FOPH), 2019, p.11).

To respond to demographic and social trends, the federal government implemented in ‘objective four (ensure healthy aging)’ the following line of action: “Enhancing prevention of non-communicable diseases” (Federal Office of Public Health (FOPH), 2019).

Objective seven aims to positively influence determinants of health by “supporting health through a healthy environment.” To achieve this goal the Federal Council wants to preserve and support nature and landscape quality. It reads “high-quality nature and landscapes are an important way of encouraging people to take up physical activity” (Federal Office of Public Health (FOPH), 2019, p.28).

Preventing non-communicable diseases is important to the Swiss government, and they realize that the creation of an environment that encourages people to be more active is one measure that can be taken.

### 1.5.3 Federal Office of public health (FOPH) and built environment

One of the main agencies promoting a healthy lifestyle in Switzerland is the Federal Office of Public Health (FOPH). The FOPH took several actions to encourage local governments to build environments that make “the healthy choice the easy choice.” In one example, the FOPH worked together with the Federal Office for Spatial Planning and the Federal Office for Housing to publish a report with examples of Swiss projects which created movement-promoting environments in suburban open spaces (Office fédéral du développement territorial ARE & Office fédéral du logement OFL, 2014). According to the report, open spaces in dense neighborhoods play an important role in urban planning. They are a place to play, meet, discover nature, be physically active, and participate in sports. This publication makes suggestions for the development of open spaces to the local authorities and other actors who play a role in the planning and conception. Suggestions are given on a regional, communal, and neighborhood level, and the authors aim to encourage interdisciplinary cooperation. The importance of interdisciplinary cooperation is clear in this publication, which involved four additional Federal Offices – the Federal Office

for Environment, the Federal Office of Sport, the Federal Office for Agriculture, and the Federal Road Office (Office fédéral du développement territorial ARE & Office fédéral du logement OFL, 2014).

Since scientific literature shows an association between BE and health, many governments try to include the promotion of movement-friendly environments in their health prevention programs. In Switzerland, it is even part of the 2030 health strategy. To reach this goal, an interdisciplinary approach is encouraged in most governmental programs. Health professionals, as well as urban planners, architects, and landscape architects should cooperate to reach health goals. But to be able to do that, they need to acquire this knowledge first and where would it be easier than during their schooling. Yet there is the question – is this association taught in Swiss urbanism, architecture, and landscape architecture degree programs?

## **1.6 Research question**

To answer to this question, this Master thesis investigates:

What is taught or not taught about the association between BE, PA and health in Swiss architecture, urbanism, and landscape architecture degree programs?

## 2. Methods

To collect the data a qualitative research design was used. This Master thesis is a questionnaire study of architecture, landscape architecture, and urbanism degree programs (DP) in Switzerland. The focus is on these three programs because architects design the built environment inside buildings, and landscape architects and urban planners influence the design of the built environment around buildings.

### 2.1 Degree programs

In the beginning, all existing Swiss degree programs (DP) in architecture, landscape architecture, and spatial planning/urbanism were identified. In *table 1* universities offering the previously mentioned study courses are listed.

<b>Architecture</b>
Bern University of Applied Sciences
University of Applied Sciences of the Grisons
University of Applied Sciences and Arts Northwestern Switzerland
University of Applied Sciences and Arts of Southern Switzerland
Haut école du paysage, d'ingénierie et d'architecture de Genève
University of Applied Sciences and Arts Fribourg
Lucerne University of Applied Sciences and Arts
University of Applied Sciences St. Gallen
Zurich University of Applied Sciences
EPFL Lausanne
ETH Zürich
Università della Svizzera italiana
<b>Landscape Architecture</b>
Haut école du paysage, d'ingénierie et d'architecture de Genève
ETH Zürich
HSR University of Applied Sciences Rapperswil
<b>Urbanism</b>
HSR University of Applied Sciences Rapperswil
ETH Zürich
University of Lausanne

EPFL Lausanne
University of Geneva
University of Geneva / University of Applied Sciences and Arts Western Switzerland
Lucerne University of Applied Sciences and Arts

Table 1: Swiss universities offering an architecture, landscape architecture or urbanism degree program.

To simplify comprehension, only the names of the cities or regions of the universities of applied sciences are mentioned. For example, the Bern University of Applied Sciences will be called Bern. The normal universities will be mentioned the same way as in *table 1*. In the following section all DPs included in this Master thesis are presented. The websites of all Swiss Universities and Universities of Applied Sciences and Arts were screened for architecture, landscape architecture, and urbanism DPs.

### 2.1.1 Architecture

Twelve universities in Switzerland offer a bachelor's DP in architecture. Six architecture DPs are offered at the master's level. Bern, Geneva and Fribourg offer a Joint Master of Architecture. *Table 2* shows which architecture schools offer a bachelor's degree, and which additionally offer a master's degree.

Bachelor's in architecture	Master's in architecture
Bern	Joint Master Bern/ Swiss occidental
Northwestern Switzerland	Northwestern Switzerland
Geneva	Joint Master Bern/ Swiss occidental
Fribourg	Joint Master Bern/ Swiss occidental
Lucerne	Lucerne
Zurich	Zurich
EPFL	EPFL
ETH Zurich	ETH Zurich
Università della Svizzera italiana	Università della Svizzera italiana
Grisons	
Southern Switzerland	
St. Gallen	

Table 2: Existing degree programs in architecture.

## 2.1.2 Landscape architecture

Table 3 shows that landscape architecture can be studied in two bachelor DPs at a University of Applied Sciences, and in two master DPs at ETH Zurich and Rapperswil. The Master's in Rapperswil is divided into landscape architecture and spatial development tracks.

Bachelor's in landscape architecture	Master's in landscape architecture
Rapperswil	Rapperswil ( <i>Spatial Development and Landscape Architecture</i> )
Geneva	
	ETH Zurich

Table 3: Existing degree programs in landscape architecture

## 2.1.3 Urbanism

For urbanism, only one bachelor DP exists in Switzerland. Five Master DPs are offered, at the University of Geneva, University of Lausanne, ETH Zurich, and the HSR University of Applied Sciences Rapperswil. The Master's at Rapperswil is the same as listed in table 3, because it consists of both landscape architecture and spatial development. At EPFL a minor in territorial and urbanism development exists. This interdisciplinary minor consists of a group of compulsory and optional courses offered by the faculty of Architecture, Civil and Environmental Engineering (ENAC). This minor is open for all master's students across the three sections of the ENAC. Further education in spatial planning exists in the form of a Master of Advanced Studies (MAS), which is offered at five universities; the EPFL and the University of Geneva offer one of them jointly. Table 4 summarizes the DPs included in this Master thesis.

Degree Program	University
<b>Bachelor</b>	
Urban, Transport and Spatial Planning	Rapperswil
<b>Master</b>	
Spatial Development and Landscape Architecture	Rapperswil
Master en développement territorial (MDT)	University of Geneva/Swiss occidental
Master en Sciences de l'environnement (MUSE)	University of Geneva
Urbanisme durable et aménagement des territoires	University of Lausanne
Master Spatial Development and Infrastructure Systems	ETH Zurich

Minors	
Mineur en développement territorial et urbanisme	EPFL
MAS	
MAS Raumentwicklung (spatial development)	Rapperswil
MAS Spatial Planning	ETH Zurich
MAS en urbanisme	EPFL/University of Geneva
MAS Gemeinde-, Stadt- und Regionalentwicklung (Communal-, city- and regional development)	Lucerne

Table 4: Existing degree programs in urbanism.

## 2.2 Questionnaire

Two questionnaires were created with google forms and then sent to the course directors of the DPs listed in *table 2* to *table 4*. The first draft was drawn up and appraised by professor Bengt Kayser. A German and a French version were created to make participation more accessible to German and French speaking course directors. The person who filled out the questionnaire did not necessarily have to be the course director, just a person who knows the DP content well, such as the academic advisor. This way it was possible for course directors to pass the questionnaire onto someone with better knowledge of the DP content. To know who responded to the questionnaire, participants were asked to enter their name, the university they teach at, their function in the department, and their role in defining the content of the DP. For reasons of anonymity, the names of the respondents are not mentioned in this analysis. Names were only used for follow-up contact. Respondents were then asked to identify if there is a specific course in their program that discusses the link between BE, PA and health. This was done using the following questions:

**German:** *“Gibt es an Ihrer Universität/Hochschule in einem oder mehreren Studiengängen eine oder mehrere Vorlesung(en), die explizit den Zusammenhang zwischen dem gebauten Umfeld, der körperlichen Aktivität und der Gesundheit behandelt?”*

**French:** *“Dans une (ou des) filière(s) de formation de votre université/haute école, y-a-t-il un cours spécifique qui traite le lien entre environnement construit, activité physique et santé?”*

Since it is possible that this link is taught, but only in another course, if their answer was no they were asked if this topic is touched upon in a different course of study:

**German:** *“Wird der Zusammenhang der körperlichen Aktivität und dem gebauten Umfeld in einer anderen Vorlesung behandelt, aber nicht als primärer Lerninhalt?”*

**French:** *“Est-ce que le lien entre l’activité physique et l’environnement construit est développé dans d’autres cours traitant également d’autres contenus?”*

If their answer was yes, respondents were asked to specify the name of the course, in which DP it was taught, and if the description of the course was available.

In the second part of the questionnaire they were asked if any course exists that teaches health, epidemiology and public health in their university program:

**German:** *“Gibt es an Ihrer Universität/Hochschule in einem oder mehreren Studiengängen eine Vorlesung, welche die Gesundheit, Epidemiologie oder Public Health behandelt?”*

**French:** *“Dans une (ou des) filière(s) de formation de votre université/haute école, y-a-t-il un cours qui traite la santé, l’épidémiologie et la santé publique?”*

If the answer was no, the survey participants were asked if there is a course in which these topics are mentioned, but not as a part of the main content:

**German:** *“Werden gesundheitliche, epidemiologische oder public health-Themen in einer anderen Vorlesung behandelt, aber nicht als primärer Lerninhalt?”*

**French:** *“Est-ce que le lien entre la santé, l’épidémiologie et la santé publique est développé dans des cours traitant aussi autres contenus?”*

If the answer to one of these questions was yes, respondents were again asked to enter the name of the course, the DP in which the course is taught, and if the description of the course is available. The second part of the questionnaire investigated if a course treating public health and epidemiology exists within one of the previously mentioned DPs. It became apparent that this link might be taught in other degree programs at the universities. *Figure 1* gives an overview of the structure of the questionnaire. The questions here are translated to English for better understanding.

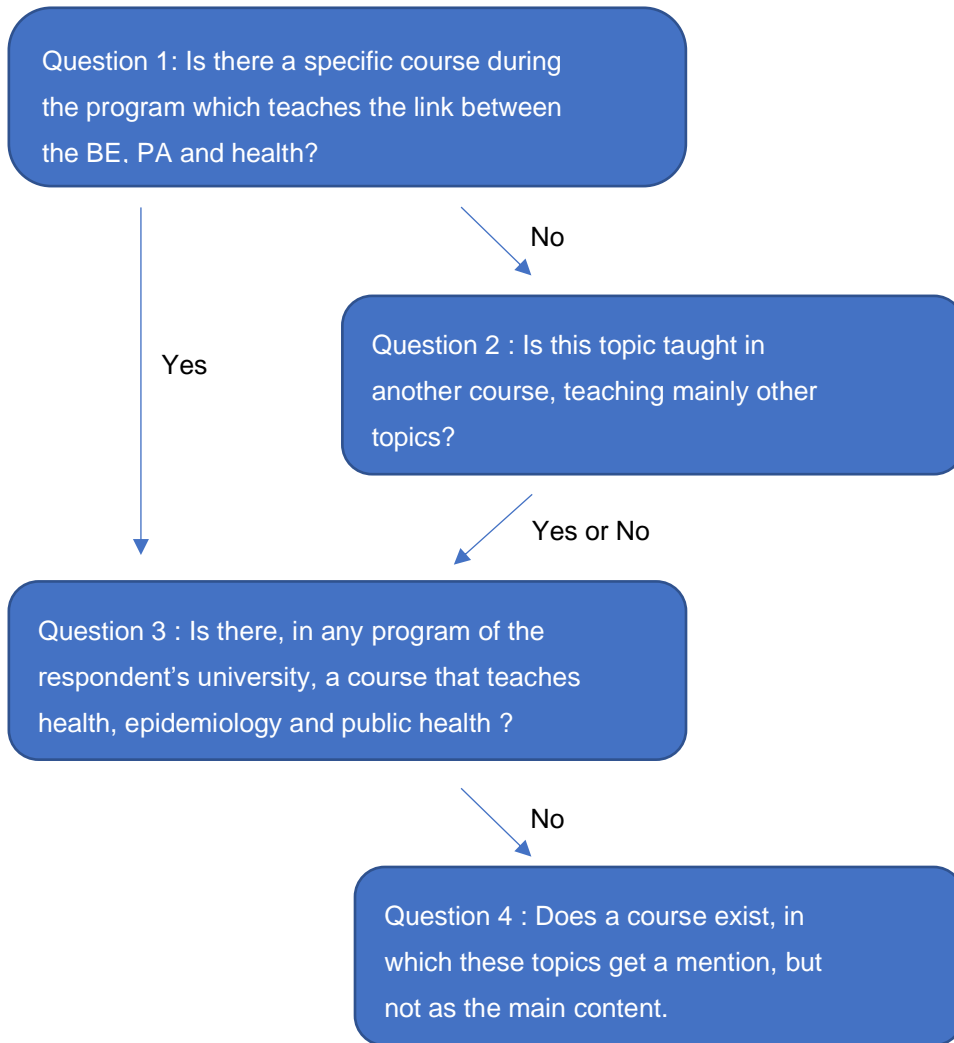


Figure 1: Structure of the questionnaire

### 2.3 Study description analysis

When the responses indicated that there is a course that teaches the relationship between BE, PA, and public health or epidemiology, course descriptions and objectives were additionally analyzed. Since it is possible that a course teaches this subject, but not as one of the main objectives, course descriptions were analyzed for mentions of health and PA. To verify if a course officially includes the link between BE and health, respondents were asked to provide the course description and objectives. The responses were compared to the content of these documents.



## **2.4 Further Information**

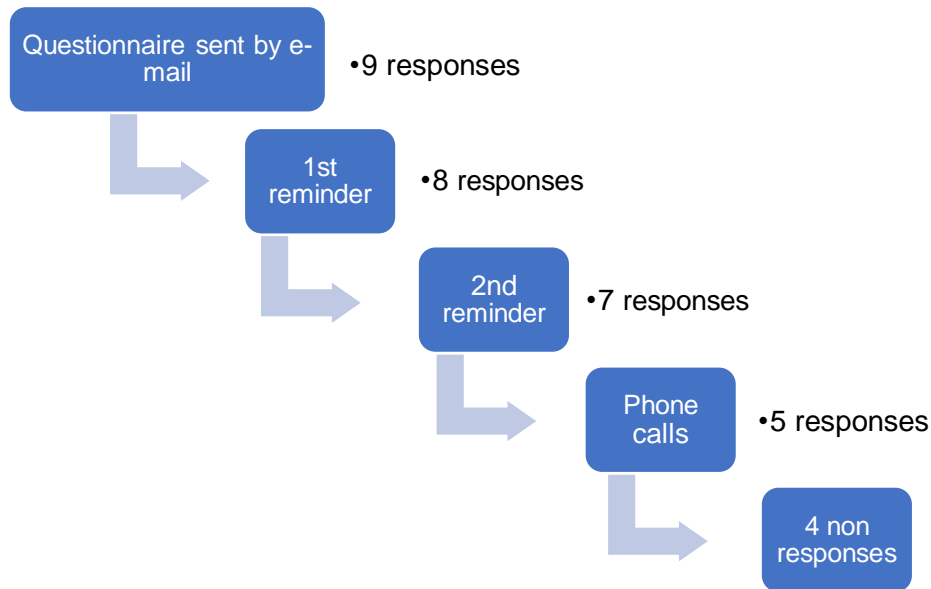
To fully understand the content of the courses, further information was requested from course directors or professors. They were contacted by e-mail or phone, and asked to confirm that not only the association between BE and PA is taught, but also the positive effects of PA on health, as well as epidemiological links. They were asked to provide, if possible, some course material that proves this relation is really explained. If no course material, such as PowerPoint slides, were available, a written confirmation from the professor was accepted in the analysis.

## **2.5 Data collection**

The questionnaire was emailed to those responsible for the DPs. Names and contacts of those responsible were found on the homepages of the universities. The first reminder was sent after one week, followed by another a week later, with a letter from professor Bengt Kayser attached. Those remaining who did not fill out the survey were contacted by phone, and the questionnaire was conducted during the call. If no response was obtained only the study descriptions were analyzed, if available. The study descriptions were screened for phrases such as *physical activities, activity, active, health, public health* and *epidemiology*. In the case that no response was obtained, but the study description mentioned a link to these subjects, the DP was included in the results and the responsible professor was contacted for further course content.

### 3. Results

In the end, responses were obtained from 29 of the 33 DPs contacted, and these were included in the analysis. *Figure 2* shows the steps for obtaining the responses and how many responses were obtained in each step.



*Figure 2: Steps for obtaining responses regarding the content of the DP.*

Seventeen of the respondents were course directors or co-course directors, and five were professors. Three study coordinators and one study advisor did respond. Three employees from the administration, who have a general overview of the DP, or who collected the responses from the professors, answered the questionnaire as well. *Figure 3* summarizes the function of all respondents and shows what their function in the DP is. Out of the 29 respondents, 25 have an active role in designing the DPs. Three respondents coordinate the DP, and one does not participate in the design of the DPs.

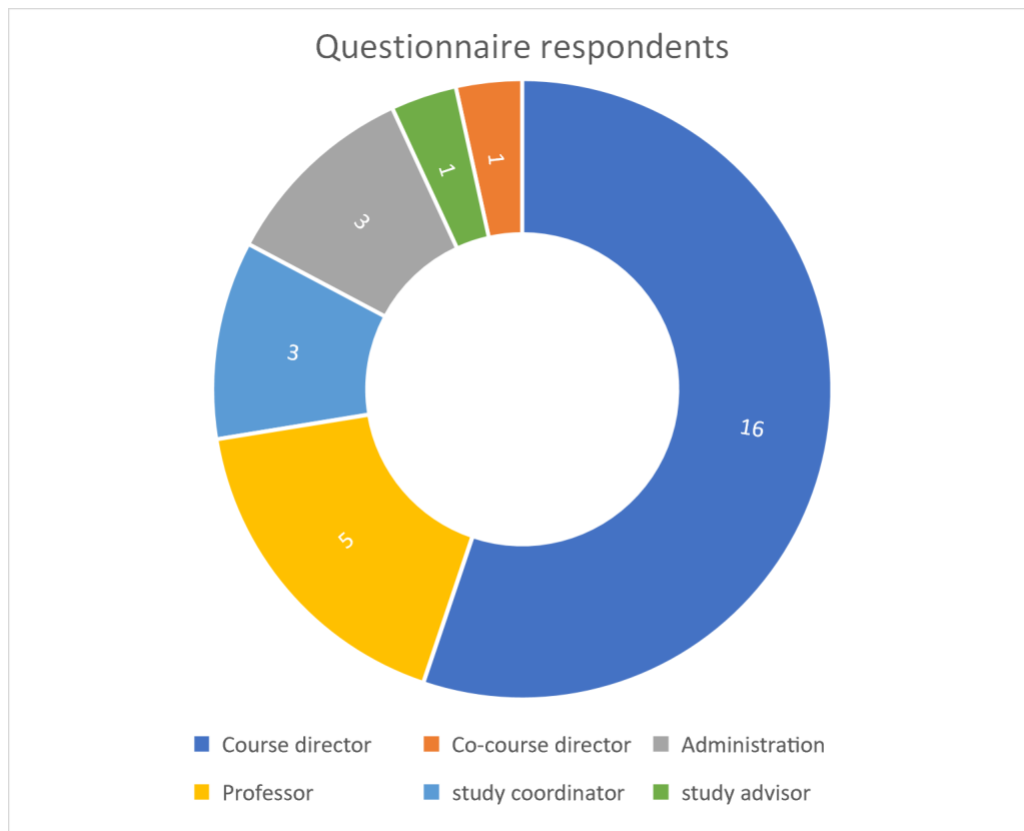


Figure 3: The function of the respondents at the university.

For the Master in Spatial Development and Infrastructure Systems at ETH Zurich no responses were obtained, but after screening the course descriptions online, a course was found which mentions a link between BE and PA. Through the professor responsible for this course, information about the course was obtained. For this reason, 30 DPs are included in the analysis, although only 29 people responded to the whole questionnaire. No responses or information was obtained for the MAS in Spatial Planning at ETH Zurich, nor for the Bachelor's or Master's in Architecture at the Università della Svizzera Italiana.

### 3.1 The relation between BE and PA and health in the DPs.

Question 1 of the questionnaire examined whether the relation between BE, PA and health is taught in the DPs. If the answer was yes, it could be assumed that there is a course focusing on this relationship. Question 2 determined if this relationship is taught in any other course of the DP. If the answer was yes, it could be assumed that the relationship was discussed with students. *Figure 4* shows how many respondents indicated that there is a course teaching this link (Question 1), that this relationship is taught in other courses (Question 2), or that it is not mentioned at all (No).

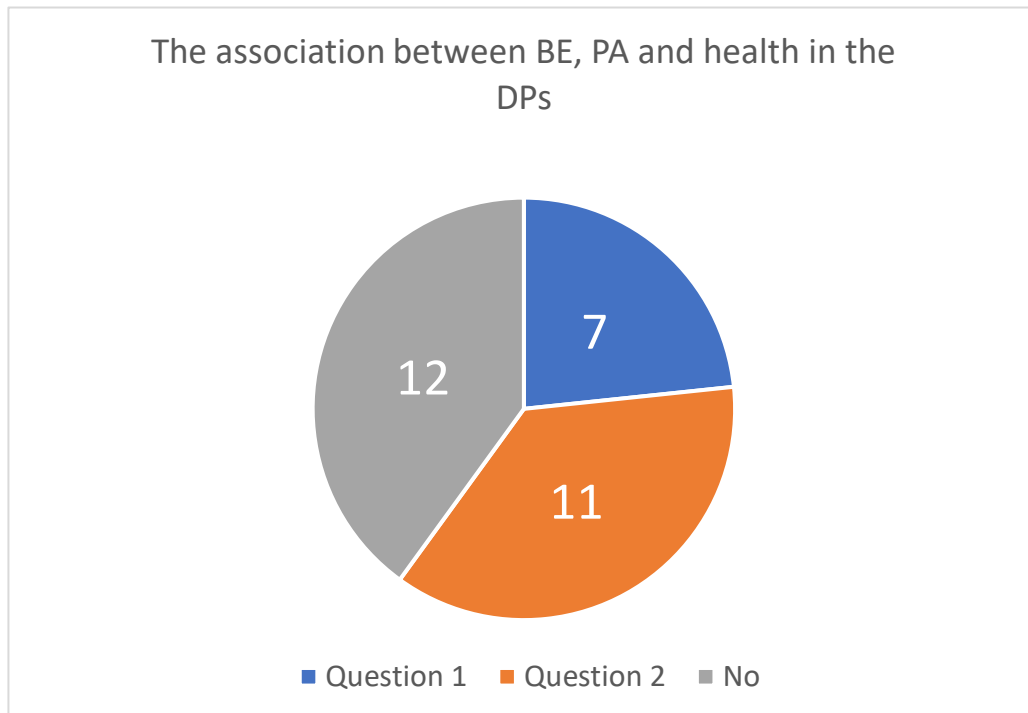


Figure 5: Does a course focus on the relation between the BE, PA and health (Question 1), is it mentioned in another course (Question 2) or does it not exist at all (No).

Results were divided among architecture, landscape architecture, and urbanism DPs, and are shown in figure 5. It gives an overview of how many respondents from each profession answered question 1 or question 2 positively, or both questions negatively.

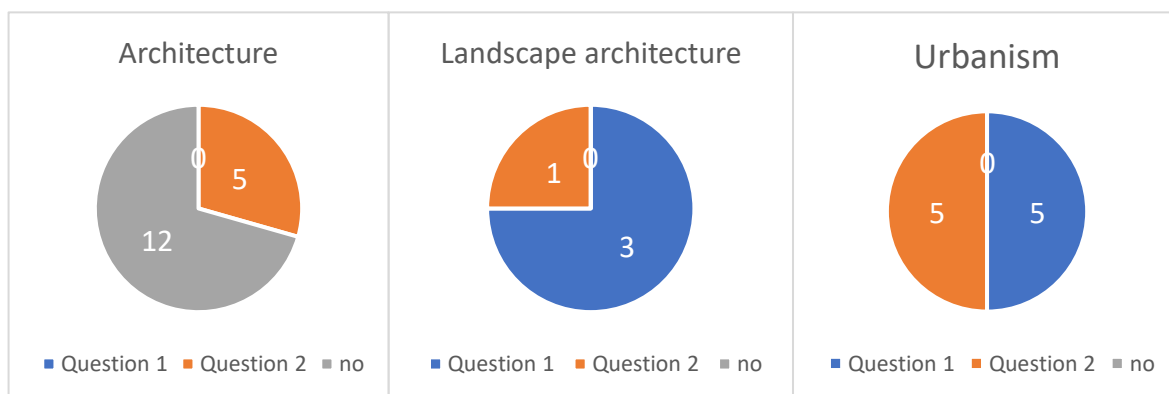


Figure 4: Does a course focus on the relation between the BE, PA and health (Question 1), is it mentioned in another course (Question 2) or does it no exist at all. Presented by formation.

According to the responses, no architecture course focuses the relation between BE, PA and health. Five of those responsible for the architecture DPs answered question 2 positively, and confirmed that the relationship is taught in courses with other main topics. In 12 DPs it is not taught in any course. In three landscape architecture DPs question 1 was answered positively, and one respondent said

that the effect of the BE on PA and health is mentioned in a course teaching mainly other content. In urbanism, courses that mention the relationship exist in five DPs, and four respondents said that a course exists which targets the link between BE, PA and health. The Master in Spatial Development and Landscape Architecture is listed twice – once in landscape architecture and once in urbanism, because of the two tracks.

The results per profession are analyzed in more detail in the following subchapters. *Table 5, table 6, and table 7* show at which universities the relation is taught and if further information, such as a course description, was available or not. If further information was available, the extent to which the link between BE and PA and health is fully developed in the course was analyzed by reading the course descriptions and contacting the professors. In this analysis, a course is considered to be one or several lectures during a period of time when theory is transmitted to the students. A studio, in contrast, is where students learn to implement the already acquired theory into practice. Here, students often learn by working on real projects. Several courses or studios, focusing on a similar subject, can be grouped into a module. Courses or studios in a module often build on one another.

### 3.1.1 Architecture

According to respondents of the questionnaire, the relationship between BE, PA and health is taught in five of the architecture DPs, but no course exists which focuses solely on this relation.

Bachelor				
University	Question 1	Question 2	Information available	The influence of PA on health is explained
Bern	No	Yes	No	-
Northwestern Switzerland	No	Yes	Yes	No
Geneva	No	No	-	-
Fribourg	No	No	-	-
Lucerne	No	No	-	-
Zurich	No	No	-	-

EPFL	No	No	-	-
ETH Zurich	No	Yes	Yes	No
Grisons	No	No	-	-
Southern Switzerland	No	No	-	-
St. Gallen	No	No	-	-
<b>Master</b>				
University	Question 1	Question 2	Information available	The influence of PA on health is explained
Northwestern Switzerland	No	No	-	-
Joint Master Bern/ Swiss occidental	No	Yes	-	-
Lucerne	No	No	-	-
Zurich	No	No	-	-
EPFL	No	No	-	-
ETH Zurich	No	Yes	Yes	No

Table 5: PA and health in architecture DPs (Results for Question 1 and 2)

### ETH Zurich

At ETH Zurich there are courses that briefly mention the relation of BE and PA to the students. During the 2019 spring semester, the course “Architectural Design V-IX: The Dark Side of the Sihl,” mentioned the influence of BE on PA in the course description. The objective of the course was to “develop a visionary landscape project that strengthens the relationship between the city, its inhabitants and the dark side of the Sihl” (Appendices, 8.6.1). “The goal of this studio is to create a new landscape topology that will enable a stronger and more active relationship and access to the Sihl for the local population. The stretch of river located at the center of town offers great landscape potential for promenade, leisure and bathing. It has been ignored over the past years for various reasons, least of which being the threat treat of flooding” (Appendices, 8.6.1). According to the professor, this course held the assumption that the promotion of sport and leisure activities leads to an improvement of health in general. However, the

effects of PA on health were not specifically discussed, and although it is mentioned in the course description that the goal of the course was to create a more active environment, the effect of BE on PA and the thereby resulted health benefits are not mentioned in the course (Appendices, 8.8.6).

According to responses, in another architectural design course, 'The alps as common ground – Marseille,' the investigated relationship was taught, but in the course description it is not specifically mentioned. Both of these courses are taught in the Bachelor's and Master's of Architecture at ETH Zurich. In the bachelor's two additional courses were found to study the relationship. According to the responses of the questionnaire, the courses 'Landscape architecture 1' and 'Landscape architecture 2' discuss the relationship between BE, PA or health. While no evidence of this is found in the course descriptions, the descriptions are very general so this does not necessarily mean that the relationship is not discussed. One description reads "rather than concentrating only on questions of style, the series will also tackle issues such as revitalization, sustainability etc." According to the objective, an "overview to contemporary and forthcoming tasks of landscape architecture" is given in the course (Appendices, 8.6.2). Although the subject of a movement-friendly environment would fit into these courses, the relation between PA and health are at best mentioned as an aside in these courses.

#### *Northwestern Switzerland*

At the university of Applied Sciences and Arts Northwestern Switzerland, two courses which teach the link between BE, PA and health are listed in the Bachelor's. In the courses '*Social Science 1*' and '*Social Science 2*' students are made aware of the fact that the BE influences our daily PA and health. The course '*Social Science 1*' deals with public spaces in an urban context with changing focus based on a current issue. '*Social Science 2*' deals with collective spaces in a suburban context with a changing focus based on a current issue (Appendices, 8.6.3). However, in the course descriptions of these two courses, no specific evidence could be found for the influence of BE on PA. Although these two courses were listed by the DP responsible, according to the professor the effect of the BE on PA is not taught, nor the relation between PA and health (Appendices, 8.8.1).

## Bern

At the University of Applied Sciences in Bern, students do not learn that the BE can affect our PA behavior in any course, but in different design studios. According to the respondents of the questionnaire, teachers include this topic when discussing student design projects. For the design studios no descriptions or further information was available, and can therefore not be checked. The same is the case for the joint master's DP.

### 3.1.2 Landscape architecture

In three landscape architecture DPs there is a course focusing on the relation between BE, PA and health. In one DP it is only part of other courses, which have other main focuses.

Bachelor				
University	Question 1	Question 2	Information available	The influence of PA on health is explained
Rapperswil	Yes	-	Yes	Yes
Geneva	Yes	-	Yes	No
Master				
University	Question 1	Question 2	Information available	The influence of PA on health is explained
ETH	Yes	-	No	Yes
Rapperswil	-	Yes	No	-

Table 6: PA and health in landscape architecture DPs (Results for Question 1 and 2)

## Rapperswil

In the bachelor's DP three main modules claimed to include the relation between the BE, PA and health: "Entwurf" (design), "Landschafts-entwicklung" (landscape development), and "Freiraumplanung" (open space planning). Six "design" modules are offered during the Bachelor, three "landscape development" modules, and seven "open space planning" modules. None of these course descriptions mention the investigated relationship. Depending on how the descriptions are interpreted, however, it could still play a role in some of the courses. The course description of "design 4" states that "the environmental design of a housing estate with questions on sustainable development and a holistic design with special consideration of user



behavior” (Appendices, 8.6.4) is taught during the course. In the course description for “design 6,” it says that students learn to “cooperate in an interdisciplinary team during the planification of projects” (Appendices, 8.6.5). According to the descriptions, all three of the “landscape development” courses include the “analysis and evaluation of the cultural, natural and recreational landscape” (Appendices, 8.6.6). In “free space planning 1,” one of the aims is to teach “knowledge about current issues like densification, sustainability and the quality of living space” (Appendices, 8.6.7). According to the responsible professor, an expert in the field of active mobility and health has taught in this course since 2019. The expert, Sabine Ruff, the former project coordinator of “moving commune” (chapter 4.4.3), teaches the course “active mobility and health” as part of the “open space planning” module. In this course she defines health and the factors which influence it. Also, the “epidemic of inactivity” is explained in her course, and how PA can be used to face this challenge. Students are also taught how BE can be created to promote health. Some ‘best practices’ are showed in the end (Appendices, 8.1.1).

According to the responses of the questionnaire, the master’s DP in landscape architecture does not mention the BE-PA-health-relation in any course.

### *Geneva*

At the “Haut école du paysage, d’ingénierie et d’architecture de Genève,” the relation between BE, PA or health was listed in three different modules. In the first module, “technique appliquée” (applied techniques), this relation is present in two different courses. The first takes into account the “personne à mobilité réduite et espace public” (persons with reduced mobility and public space) and the second the “mobilité douce” (non-motorized mobility). A course description is only available for the module in general and not for these specific courses. In the description of the applied “techniques” module, no evidence for the investigated link could be found. The second module, “course de sociologie des espaces publics” (sociologic courses of public spaces), does not specifically mention this link in the description either, but as the objectives of the course are “to identify the social and historic characteristic of a given territory” and to “analyze the different requests in the project approach,” the link could be inferred (Appendices, 8.6.8). The third module is the optional module and, according to the respondents, contains three courses that discuss the PA-BE-relationship. In “place de jeux et nature” (playground and nature), “agriculture urbaine / problématique local et alimentaire” (urban agriculture), and “mobilité” (mobility),

this relationship is brought to students' attention. However, no course description is available for the optional module. The relationship between BE and PA is present in this DP, but it could not be confirmed whether or not the students are made aware of the positive effects of PA on health, because no further information was obtained.

### *ETH Zurich*

In the master's DP at ETH Zurich there are two courses which focus on the relation between BE, PA and health. The course "Neue Stadtlandschaft und Gesundheit" (civic design and public health) already in the title acknowledges a connection between BE and health. This relation is also taught in the second course, "Grundlagenstudio 2" (basic studio 2), as a main objective. As this master's DP is new, both courses will take place for the first time in 2021, so no course descriptions exist at the moment. However, in the study regulations the "basic studio 2" is described. The description says that "basic studio 2" is a design studio that considers existing constructions as well as social, health, political, and environmental strategic issues (Appendices, 8.6.9). Since the consequence of inactivity is a political health subject, it is part of this design studio. According to the course director, health and PA issues are part of the new Landscape Architecture Master at ETH Zurich (Appendices, 8.8.2).

### 3.1.3 Urbanism

According to the respondents, five out of the ten analyzed urbanism DPs focus on the relation between BE, PA and health in at least one of the offered courses. In the other five DPs it is only an aside of courses focusing on other topics.

<b>Bachelor</b>				
<b>University</b>	<b>Question 1</b>	<b>Question 2</b>	<b>Information available</b>	<b>The influence of PA on health is explained</b>
Rapperswil	Yes	-	Yes	No
<b>Master</b>				
<b>University</b>	<b>Question 1</b>	<b>Question 2</b>	<b>Information available</b>	<b>The influence of PA on health is explained</b>
Rapperswil	-	Yes	Yes	No
University of Geneva/Swiss occidental (MDT)	No	Yes	No	-

University of Geneva (MUSE)	Yes		Yes	Yes
University of Lausanne	Yes	-	Yes	Yes
ETH Zurich	Yes	-	Yes	No
<b>Minor</b>				
<b>University</b>	<b>Question 1</b>	<b>Question 2</b>	<b>Information available</b>	<b>The influence of PA on health is explained</b>
EPFL	Yes	-	Yes	No
<b>Master of Advanced studies (MAS)</b>				
<b>University</b>	<b>Question 1</b>	<b>Question 2</b>	<b>Information available</b>	<b>The influence of PA on health is explained</b>
Rapperswil	No	Yes	Yes	Yes
Lucerne	No	Yes	No	-
EPFL/University of Geneva	No	Yes	No	-

Table 7: PA and health in urbanism DPs (results for question 1 and 2)

### Rapperswil

In the bachelor's DP in Rapperswil, one course focuses on the relation between BE and PA only. In the module "Städtebau 7" (city construction 7), one course called "bewegungsfreundlich Siedlungsräume" (moving-friendly residential area) familiarizes the students with this subject (Appendices, 8.7.2). "City development projects with a changing thematic focus" (Appendices, 8.6.10) are part of this module. And in some years, this thematic focus is on the relation between BE and PA. However, a consequent link between PA and health is not made in any course during the bachelor's DP. When this relation is present, it is more of a side note. In the master's DP "spatial development and landscape architecture," in the spatial development department, there is no course that specifically teaches this link; but in several modules, like "Städtebau 2-Freiraumplanung" (city construction 2-Freespace planning), and "Städtebau 3" (city construction 3), it is indeed mentioned. Two examples of courses where it is mentioned are "Freiraum-Versorgung" (free-space supply) and "Sport-Ort" (sport-place). In traffic planning courses walking and cycling is part of the course content, and here the link between BE and PA is made as well. But again, the effect of PA on health is not specifically taught (Appendices, 8.8.3). In the MAS in spatial

development, as a part of the CAS “Fuss- und Radverkehr” (Walking And Cycling), there is a module focusing on movement and health. No course description or objectives were available, but the title, “Fuss- und Radverkehr und Gesundheit” (Walking, Cycling and Health), suggests that the influence of PA on health is taught. The responsible professor provided insight into the course program of this module. One workshop is called “Bewegung im Alltag fördern” (promote movement in daily life), and another “Bewegungsfreundliches Wohnumfeld” (movement-friendly living environment) (Appendices, 8.7.3). Although no detailed course descriptions were available, the title and the course schedule show that measures to promote walking and cycling are taught during this course, and the importance for public health is explained.

Although the relationship between BE and PA is a present subject in urbanism DPs at Rapperswil, only during the CAS “Walking And Cycling” section are the effects of movement-friendly environments on health discussed.

#### *University of Geneva*

In the Master of Territorial Development (MDT) there is no course that focuses on BE and its influence on PA. However, according to the respondent in nearly every studio this relation has become a dimension of the projects in these studios. In the description of the studios, the PA-subject is not present. In the “atelier interdisciplinaire” (interdisciplinarity studio), for example, students are asked “to tackle a problem which has social dimensions in its globality” (Appendices, 8.6.11). One of these problems deals with quality of life and responses to health challenges. In this studio an interdisciplinary approach is required. According to the respondent, the topic of health in combination with BE is not specifically taught, but is always considered when planning projects. Additionally, urbanism experts from different domains, such as the promotion of PA and health, take part in these studios.

In the Master of Environmental Science (MUSE), the course “environnement et santé” (environment and health) teaches this link. According to the description of the course, “the integration of the environment and health for the improvement of the quality of urban life is explained” (Appendices, 8.6.12). The course is based on the WHO ‘healthy-cities-program’. Although no specific link to PA is made in the course description, the influence of inactivity on health is mentioned in the course and, according to the responsible professor, students get familiarized with how environments can be adapted for the promotion of PA. A specific course

called “PA, health and BE” discusses the problematic development of chronic diseases due to inactivity, the recommendation for daily PA, and the effect of the BE on our lifestyle. The course points out a variety of possible solutions that can diminish these problems (Appendices, 8.7.4). Another course, which discusses the effect of BE on PA and health, focuses on walking and explains why it should be promoted. It mentions that walking prevents non-communicable diseases, and therefore has a positive effect on health.

In the MAS in Urbanism at the University of Geneva and the EPFL, there is no course that investigates the relation between BE and health. However, as in the Master of Territorial Development (MDT), this relation is taught in studios where students work on real projects. In addition to the studios, in one of the CAS sections, “projet d’urbanisme et planification spatiale” (urbanism project and spatial planification), the association between BE and health is mentioned in some courses.

At the University of Geneva, the Master of Environmental Science is the only program that addresses this subject in a course. In the Master of Territorial Development, and in the MAS in Urbanism, it is only mentioned in studios or without considering the relation between PA and health.

#### *University of Lausanne*

During the master’s DP at the University of Lausanne, the course “sustainable mobility: practices, planning and strategies” focuses on the link between the BE and PA. The description mentions that the course focuses on “urban mobility that is less based on individual motorized transportation, like cycling” (Appendices, 8.6.13). This course description states “mobility, shaped by the functioning of the economic system, by lifestyles and by spatial structures, increasingly intense and complex” (Appendices, 8.6.13). Mobility “raises many issues in urban areas, like for example its impact on the quality of life” (Appendices, 8.6.13). Furthermore, the course points out that “on this basis, numerous local authorities promote an urban mobility that is less based on motorized transportation, but pays more attention to active mobility, like cycling” (Appendices, 8.6.13). The fact that cycling has a positive influence on health is not mentioned in the description, but in the introduction course the problem of non-communicable diseases, the resulting health cost, the need for the promotion of PA, and the influence of BE on it is briefly described (Appendices, 8.7.5). The investigated subject is only mentioned on a few slides, but this means that students are made aware of these problems.

### *ETH Zurich*

No responses from those responsible for the ETH Zurich DPs were obtained. However, while analyzing all the course descriptions online, one course was found which focuses on the investigated relationship. The course “Fuss- und Veloverkehr” (walking and cycling) explains the “basics of the pedestrian traffic planning, as well as the planning of the infrastructure for the bicycle traffic” (Appendices, 8.6.14). According to the course description, students “acquire the basic knowledge in the field of pedestrian and bicycle traffic planning” (Appendices, 8.6.14). The characteristics of walking- and cycling-friendly infrastructure and the necessary techniques to implement these concepts into real planning are taught in this course. But according to the responsible professor, no link between PA and health is taught in the course. The focus is rather put on how to build the infrastructure. That the BE can bring health benefits is not mentioned in this Master’s (Appendices, 8.8.7).

### *EPFL*

In the minor “territorial and urbanism development,” two courses were listed that teach the relation between BE and PA. The courses “santé environnementale” (health environment) and “santé au travail” (health at work) are part of the module “Santé environnementale, santé au travail” (workplace environments & occupational risk). Although the module explains the relationship between the quality of the working environment on public health, the link between PA and BE is not listed in the description. The examples of what influences health at the workplace given in the description, such as chemical pollutants or noise, do not include PA (Appendices, 8.6.15). According to the professor, only the environmental risks related to physical, chemical and biological agents are discussed in the course. PA is not a part of the discussed subjects (Appendices, 8.8.4). The relation between the BE, PA and health is not addressed in this minor either.

### *Lucerne*

In the MAS “communal-, city- and regional development” at Lucerne no course focuses on the relation between BE, PA and health. But in the CAS “Gemeinde- und Stadtentwicklung im Wandel” (communal- and city development in the transition), the relation of BE, PA and health is part of the study content. The subject “healthy communes,” and the promotion of health through the planning

and enhancement of public spaces, for example, are a part of this CAS. According to the respondent, this subject could also be a topic analyzed in a Master thesis. The relation between the BE and health, therefore, is present in this program. But no course description and no further information is available to prove if the relation between PA and health is taught.

### 3.2 Verified results vs. questionnaire responses

Respondents from 18 DPs said that the relation between the BE, PA and health is mentioned in at least one of the courses/modules, or that courses exist which focus on this relation. But only five DPs confirmed that not only the association of the BE and PA is taught, but also the positive effect of PA on our health. In *table 8*, all courses of the different programs in which the students are made aware of the problems of a sedentary lifestyle, the positive influence of PA on our health, and how the BE can contribute to it, are listed. It is also visible if an official course description was available, and if the complete relationship was mentioned. The courses listed in *table 8* are all introduced in chapter 3.1.

Architecture		
University	Title	Description
-	-	-
Landscape Architecture		
University	Title	Description
Rapperswil	Open space planning	No
ETH Zurich	New city landscape and health	-
Urbanism		
University	Title	Description
Rapperswil	Walking, cycling and health	-
University of Geneva	Environment and health	No
University of Lausanne	Sustainable mobility: practices, planning and strategies	No

Table 8: Confirmed courses which teach the health effect of PA and where it is mentioned in the description (yes/no) or where a description is not available (-).

The courses in *table 8* are the only courses in which further information about the study content was available. The two DPs (Geneva and Lucerne), where no confirmation was obtained, and the four DPs (Bern, Bern/Swiss occidental, University of Geneva, EPFL/University of Geneva) where this relation is not taught in a course but in studios, are listed in *table 9*. For a studio it is not possible to prove if this relation is fully explained or not, because the projects in these studios change every year and depend on the professors and their main focus.

Architecture		
University	Title	Description
Bern	Design Studio	No
Joint Master Bern/ Swiss occidental	Design Studio	No
Landscape Architecture		
University	Title	Description
Geneva	-Applied techniques -Sociologic courses of public spaces -Optional module	No
Urbanism		
University	Title	Description
University of Geneva	Project studios	No
EPFL/University of Geneva	Project studios	No
Lucerne	Communal- and city development in the transition	-

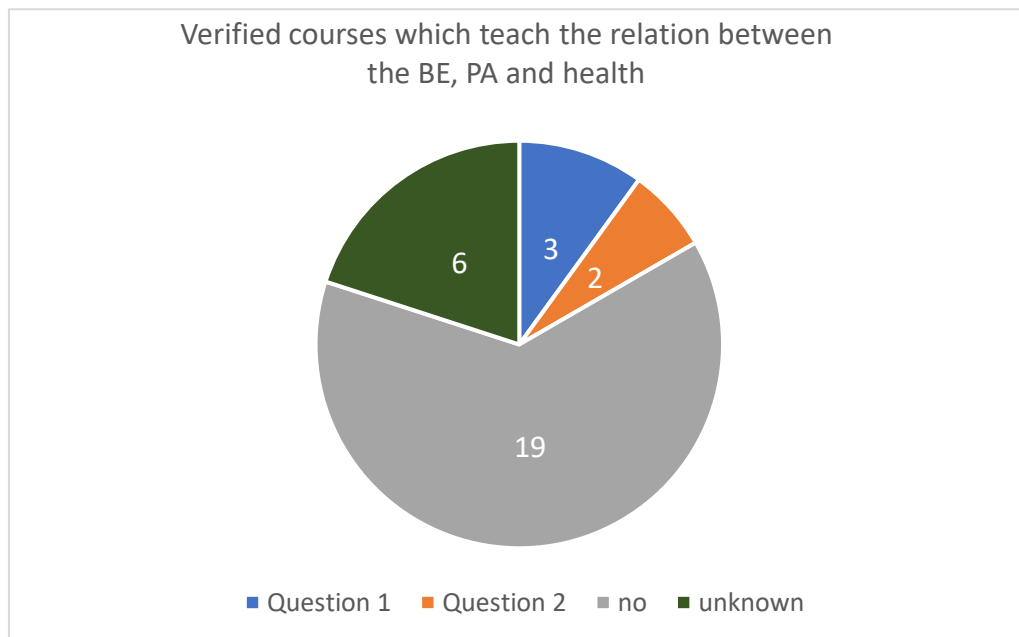
Table 9: DPs with no confirmation of the indicated courses or studios.

Whether the courses are confirmed or not, the full relation between the BE, PA and health is not mentioned in any available course description.

After checking the courses to see if not only the relation between PA and the BE is taught, but also its positive effect on health (such as mitigating non-communicable diseases), the results showed only 5 out of 18 DPs do indeed teach both. In four DPs this subject is only taught in studios, and therefore it cannot be confirmed whether it is actually taught or not. And for two DPs no



confirmation was obtained. Additionally, it needs to be considered that in seven DPs this complete BE-PA-health link is not taught, although it was indicated by respondents. *Figure 6* shows how many DPs contain a course with a confirmed focus on the full link, and where question 1 can really be answered positively. Additionally, it shows where this subject is really mentioned in any other courses (*question 2*), how many DPs do not contain a course with a confirmed link or where the link is only transmitted in studios (unknown), and in how many DPs it is not present at all (no).



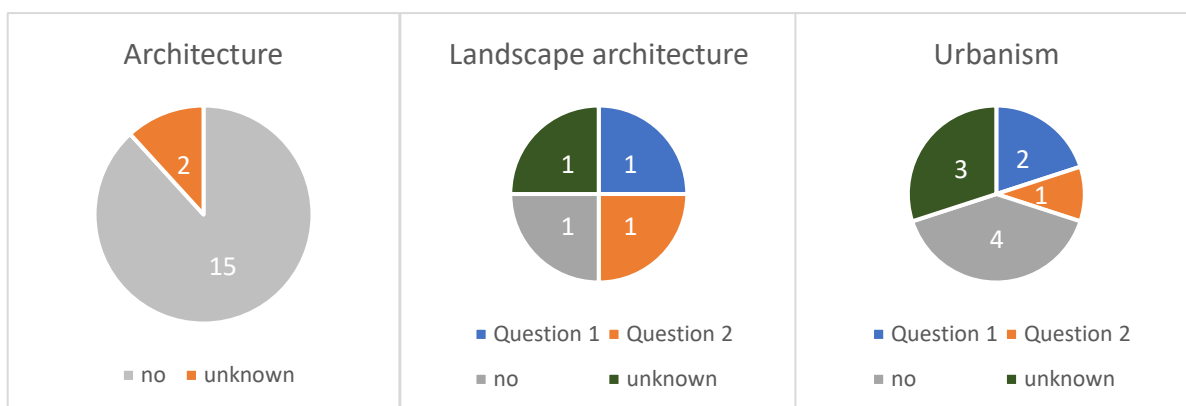
*Figure 6: Verified courses which focus on the full relation between the BE, PA and health (Question 1), which treat the subject in at least one course (Question 2), which do not mention the full relation and for which no confirmation was obtained (unknown).*

By separating these results for each program, it becomes evident that no architecture DP contains a course where the full relation is taught. Either the link between the BE and PA is only explained without considering the health effects, or a link between the BE and health is taught without taking into account PA. Of the five DPs where the respondents indicated that this link was taught no course could be confirmed (chapter 3.1). In the two DPs at Bern, it was indicated that this subject is taught in design studios, which is why no confirmation was obtained.

In landscape architecture DPs, all respondents indicated that the link between the BE, PA and health is taught in their DP (chapter 3.1). But after checking the courses, it was only confirmed in the bachelor's DP at Rapperswil and the

master's DP at ETH Zurich. In the master's DP at Rapperswil, the link is not fully developed; and for the DP at Geneva no confirmation was obtained.

For the urbanism DPs similar findings were obtained. All respondents of the ten DPs answered either question one or two of the questionnaire positively, indicating that the investigated relation was taught in some way. In the “Master en Sciences de l’environnement (MUSE)” at the University of Geneva, and the MAS in Spatial Development at Rapperswil, it was confirmed that there is a course which focuses on this subject; and in the DPs at the University of Lausanne it is mentioned but not a focus. In four of these courses, however, the relation between the BE and PA or health is not fully explained. This means that either the link to PA or to health is not made in the course. For three DPs no confirmation was obtained. *Figure 7* shows how many DPs can really answer question one or two positively, how many DPs did not confirm the relationship, and how many DPs do not teach this subject at all, after verifying the results.



*Figure 7: Verified courses which focus on the full relation between the BE, PA and health (Question 1), which treat the subject in at least one course (Question 2), which do not mention the full relation (no) and for which no confirmation was obtained by formation (unknown).*

### 3.3 Health, Epidemiology or Public health

In questions three and four of the questionnaire, the respondents were asked if in any of the respondent's university programs there is a course that discusses health, epidemiology or public health. This applied to all courses of the university, including courses held at other departments. In three DPs, there is a course in which the students are made aware of the subject of health – whether in relation to PA or not. *Figure 8* shows, according to the respondents, how many of the surveyed DPs have a course in which a health-related subject is included.

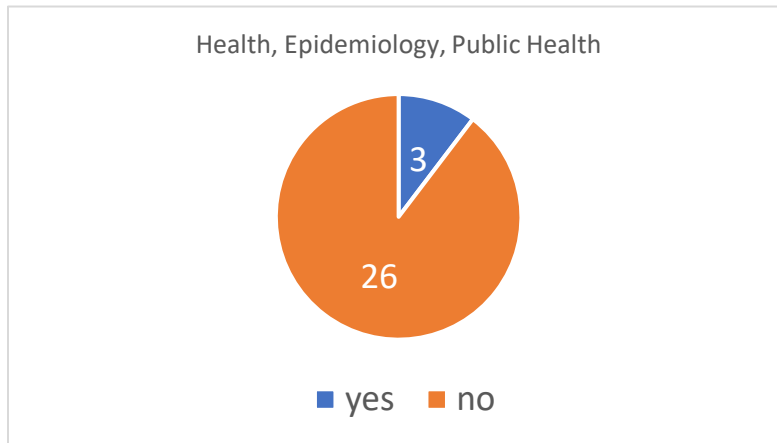


Figure 8: Numbers of DPs which indicated to teach a course about health, epidemiology or public health

The following DPs indicated that a course treating health, epidemiology or public health exists in their program:

- ETH Zurich, Landscape Architecture: New city landscape and health
- University of Geneva, Urbanism: Environment and health
- EPFL, Urbanism: Exploratory Data Analysis and geovisualization

Although 26 DPs do not offer a course about public health or epidemiology, there are courses at the same universities that do teach at least one of these subjects. At the same university as 20 of the surveyed DPs, it was indicated that there is a course that offers, either in the DP itself (see chapter 3.3), or in another DP, at least one of these subjects. Seventeen of these courses are taught in social science, sport science, or other health related DPs. *Figure 9* indicates how many of these courses there are within the same universities as the investigated DPs.

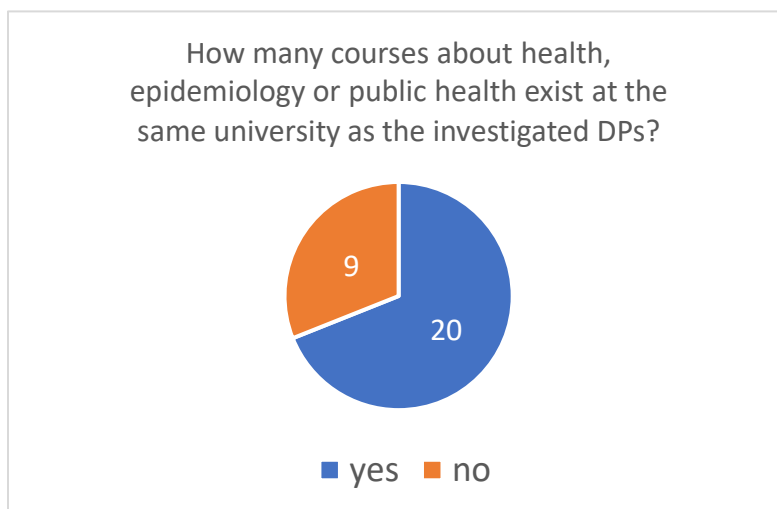


Figure 9: Numbers of DPs which have a course about health, epidemiology or public health at the same university, either in another department or in the DP itself.

## 4. Discussion

The aim of this Master thesis was to analyze what is taught or not taught about the association of BE, PA and health in Swiss architecture, urbanism, and landscape architecture DPs. It has been proven that, depending on how the BE is constructed, BE can promote PA (Van Holle et al., 2012). Professionals in these subjects therefore have an impact on public health. Already “in the 19th and early 20th centuries, architects and urban reformers in New York City and elsewhere helped defeat infectious diseases like cholera and tuberculosis by improving buildings, streets, neighborhoods, clean water systems, and parks. In the 21st century, designers can again play a crucial role in combating the biggest public health epidemics of our time: obesity and related chronic diseases such as diabetes, heart disease, and some cancers” (City of New York, 2010, p.12). In Switzerland, 77% of the population – or in absolute numbers, around 6,5 million people – live in urban areas (Office fédéral de la statistique & Union des villes suisses, 2020). City planners should therefore actively “consider nature and landscape quality as a contributor to structural health promotion and enhance this quality by means of revaluation measures” (Federal office of public health (FOPH), 2019, p.28). The inclusion of this knowledge in Swiss DPs that educate students about environmental planning is therefore of great importance. But in Switzerland, this is at the moment not sufficiently done. In seven of the thirty analyzed Swiss DPs, respondents indicated that there is a course specifically related to this subject. And in eleven DPs it was indicated that this subject is mentioned in other courses that do not focus mainly on the relation between BE, PA and health. Out of the 18 courses that reportedly teach this relation, only five courses confirmed a link between PA and health. Eighteen respondents answered question one or two positively, but only two of them mentioned the course again, when indicating a course about health, epidemiology or public health. This confirms that the health benefits of PA are not often discussed in the DPs. Although it is often only mentioned very briefly or as a side note, the positive effect of PA on health is illustrated in only five courses. And only two urban planning DPs and one landscape architecture DP contain a course which focuses on the health-related problems in our society, how PA can contribute to the prevention of chronic diseases, and the influence of BE on how much we move.

The results have shown that this subject is more present in the urbanism and landscape architecture DPs than in the architecture DPs. For this reason, the results of urbanism and landscape architecture surveys are discussed together. The results for architecture are discussed separately to more closely dissect the results. In both parts, some examples are shown where this concept has already been implemented into DPs. Organizations that promote the possibilities of this relation between the BE, PA and health are presented and discussed, as well as how this concept could be integrated into the DPs. At the end, the possibilities and challenges of integrating this concept are discussed for all three subjects.

#### **4.1 Urbanism and landscape architecture**

In urbanism DPs, there are two courses which specifically teach the investigated relation between BE, PA and health. “Walking and cycling and health” at Rapperswil is one of these two courses. But this course is only a part of the MAS. Since it is not a part of the Bachelor or the Master, it is not part of the regular curriculum of the students. At Rapperswil, future urban planners only get to know this subject if they further their education in a MAS. “Environment and health” is the second course. Part of the course content used to be presented by a sport scientist professor, and the current professor maintained this content over the last years. In this course, the public health crisis is first discussed, and then students are taught how BE can influence our physical activity behavior. After taking this course, students should be more aware of this issue. Although some students in this program end up in an urban planning office, the curriculum is not solely focused on urbanism. This means that not all of them will be working in a planning office, but they could at least use this knowledge in other areas.

In landscape architecture, all DPs indicated that they teach the relation between the BE, PA and health. Only Rapperswil provided further course content that confirms not only the relation between the BE and PA is taught, but also the effects of PA on health – or more specifically, physical inactivity. An external expert with experience in the promotion of movement-friendly environments in communes (chapter 4.1.3) teaches this course, and shows mainly the relation between active mobility and health. At ETH Zurich no course content exists yet because the courses will take place for the first time in 2021. However, the course coordinator confirmed that the relation between the BE, PA and health will be taught, and that the issues related to these subjects are considered important in landscape architecture. At Geneva no course content is available which shows

the relation between PA and health. From the course descriptions, however, it is apparent that these courses focus on the wellbeing of the population. The respondents indicated that the relation between the BE and PA is taught, so it is possible that students are being alerted to the importance of promoting PA in the projects they are working on.

Although many analyzed DPs indicated that they include PA in their curriculum, at the moment only the two urbanism courses and the one landscape architecture course previously mentioned focus on the relation between PA and health. A positive trend can be observed for the newly created master at ETH Zurich, where this association will be discussed more intensely. It seems that the exact health benefits of PA are not an important topic in the environmental planning community. The importance of PA for our wellbeing is understood; but exactly how PA influences NCDs, such as diabetes, is not yet thoroughly discussed in the urban planning and landscape architecture community. To understand why a movement-friendly environment is important for the health of society, the influence of PA on health should be taught to the students. This should not be difficult to include, because most DPs already acknowledge the importance of PA, and they would only have to further include the health benefits of regular PA. Although the influence of the BE on PA and health is not very common in the DPs, there are already several programs and projects which support movement-friendly environments in Switzerland. How the findings and expertise from these projects could be used in the DPs is discussed in the next paragraph.

#### 4.1.1 Best practices

Fischer et al. (2018) documented, on behalf of the Federal Office of Public Health, the Swiss movement-friendly environmental projects, and analyzed the factors of success of these projects (chapter 1.2). This analysis by Fischer et al. (2018) showed that the promotion of a movement-friendly environment is only the main goal in 2 programs: in the “structural PA-promotion in communes” and the “communal sport facility” projects. In all other programs, structural changes which promote PA are only a part of the whole set of measures that are taken in this program. A closer look was needed to detect aspects of a movement-friendly environment in the projects. The main focus of the other programs is rather on topics such as sustainable development (Fischer et al., 2018). But as mentioned before, they do still include movement-friendly environmental measures as a

secondary aim. This finding corresponds to the other findings of this master thesis. Movement-friendly environments in the DPs are often a part of other subjects such as sustainability or traffic planning. This means that the design of environments that promote PA can be combined with several other subjects, which are already taught at the universities. This makes it even easier to include this topic in the DPs.

As described in the literature analysis, 14 projects were analyzed in more detail to detect the factors of success. The analysis of the success factors of the 14 projects showed that there is no “silver bullet” in building a movement-friendly environment, but Fischer et al. (2018) highlighted some potential factors of success in their study. They also pointed out the risks these factors could have.

- **Expertise:** A procedure based on facts increases the probability of success. But reliable basic data in this field is rare and needs to be acquired first.
- **Interdisciplinarity:** Competencies and perspectives of different sectors need to be considered. A possible conflict of interest needs to be avoided.
- **Participation:** The opinion of the users needs to be taken into account during the planification, although it can be costly and difficult to get this information, especially from vulnerable populations.
- **Multiplication:** The multiplication of projects makes them cheaper and increases the possibilities of success. But the financial means are often missing, and local particularities are often not considered when projects are multiplied.
- **Long-term anchoring:** Projects can be maintained over a longer term and can be further developed. The longer a project lasts, the more financial aid is needed and there is a risk that the concept becomes outdated

A fact-based planification, multisectoral cooperation of actors from different disciplines, long-term anchoring of the project, and the integration of the users' opinions are key for the successful implementation of a project which promotes movement-friendly environments. To get the required expertise, it is important that future urbanists and landscape architects are educated properly. These findings should be implemented into the courses of the planning DPs. Future planning professionals would then get to know some best practices of movement-friendly environmental projects and their factors of success.

#### 4.1.2 Active mobility and health

One of the reviewed projects by Fischer et al. (2018), is “Mobilité active et santé” (active mobility and health), launched by the organization “Mobilité piétonne Suisse” in cooperation with the “Fondation Suisse de Cardiologie” and the Federal Office of Public Health. The organization oversees the promotion of active mobility (e.g. walking or cycling) in the context of the sitting epidemic and growing numbers of chronic diseases. However, only a few people are aware of the fact that the BE influences our PA behavior. For this reason, this project wants to call attention to this topic and demonstrate that active mobility can be influenced by appropriate spatial and traffic planning (Leuba, 2019). As already presented in the literature analysis, the health benefits of active mobility in Switzerland have been proven (Ecoplan & Infrac, 2014), and active mobility has huge potential in Switzerland (Schad H. et al, 2008). For this reason, the active mobility and health project “aimed to improve the framework for a better interdisciplinary cooperation between planning and health experts. Concretely, the project wants:

- to impart and anchor this knowledge in a wide circle of experts.
- to enable more experts to take greater account of health-promoting aspects in planning and construction projects.
- to design public spaces moving-friendlier” (Leuba, 2019, p.5).

A part of this project consisted of holding courses for future planning and health experts. From 2017 to 2019 about 500 students from 11 Swiss universities were taught about the effect of the BE on active mobility and health. Course material was developed in German and French to reach as many students as possible. The course PowerPoint presentations can be downloaded on their website.

A typical course for urban planners is structured in the following way:

- Health: The students learn what the health challenges of our society are, that our population is getting older, that more people suffer from non-communicable diseases and the resulting cost for our health system.
- PA: What is the difference between exercise and PA, what effects does PA have on non-communicable diseases, and what are the recommendations for PA?
- Environment and health: How does the environment influence health (in the past and now), which factors make an environment more movement-friendly, and what are some best practices (*Mobilité active&santé*, 2016)?



The presented determinants in these courses that are most effective at enhancing PA are comparable to the determinants introduced by Smith et al. (2017) and Van Holle et al. (2012). The scientific findings about environments that enhance PA would be passed on to the students in these courses.

Out of eleven participating universities, three educate future urban planners: the Master in “urbanisme durable et aménagement des territoires” at the university of Lausanne, the CAS “Walking, Cycling and Health” at Rapperswil, and the joint Master “en développement territorial (MDT)” at the university of Geneva/Western Switzerland. According to the final report of the project, these three kept this course in their DP (Leuba, 2019). At the University of Lausanne, the epidemiologic factor is only mentioned briefly, but it is still taught. In Rapperswil, the course still exists in an urban planning DP, but only in the MAS. At the University of Geneva and Western Switzerland, the course is not taught anymore, but the subject is mentioned in studios. Additionally, one of these courses has been taught by Sabina Ruff in the Landscape Architecture Bachelor’s DP at Rapperswil since 2019.

Most of the movement-friendly environmental projects focus mainly on active mobility, like those mentioned above. Although measures to increase PA in our daily life should not be reduced to only active mobility, it probably has the biggest potential, because it has other benefits than simply those for our health. The risk of accidents can be reduced when more people walk or bike. A study conducted with international data showed that there were fewer accidents between motorists, walkers and bicyclists when more people walked or biked. The more people that use active transportation, the less likely it is that a motorist will collide with a person walking or cycling (Jacobsen, 2003). This principle is called “safety in numbers,” and shows that not only long term health benefits can be achieved through the construction of bicycle lanes and walking routes, but also that accidents can be prevented. But perhaps the most important reason to promote active mobility is the positive effect it has on pollution and climate. By walking or cycling and avoiding unnecessary car rides, fine particulates can be reduced (FOEN, Federal Office for the Environment, 2007). Polluted air damages the trachea and the lungs, and causes cardiovascular diseases. Studies show that the health of children and adults improves rapidly after reducing pollutants in the air (FOEN, Federal Office for the Environment, 2019b). Air pollution caused by particulate matter is 25% due to motorized traffic (FOEN, Federal Office for the Environment, 2019a). The health cost due to air pollution in 2015 was CHF 6

billion, where half of it was caused by motorized traffic (Ecoplan & Infrac, 2019). Not only our health would benefit from less motorized traffic, but also our climate. 32.4% of all greenhouse gases emitted in Switzerland originate from motorized transport, and around 74% of all greenhouse gases from motorized transport are due to individual motorized traffic, such as car, motorbike and bus traffic (FOEN, Federal Office for the Environment, 2020).

Promoting active mobility can produce enormous benefits for our health and climate. The full potential of walking and cycling has not nearly been reached. One eighth of all distances driven by cars are shorter than one kilometer, and one third are shorter than three kilometers. These distances can, in most cases, be easily covered by walking or cycling (Grob et al., 2009). Most people would walk or cycle if the right infrastructure was available. In the survey “health and lifestyle,” conducted by the Federal Office of Public Health, 75% of the interviewees mentioned that safe, attractive, and consistent walking and cycling paths would encourage more movement (Federal Office of Public Health, 2018). This shows that active mobility not only brings positive health effects because of the increase in PA, but also a decrease in air pollution, contributing to a better climate. Considering all these positive effects, it should be taught to students at the universities. And when talking about active mobility, not only the benefits for air quality and the climate should be mentioned, but also the positive effects of PA on our health.

Although a lot of knowhow exists for active mobility, the teaching of movement-friendly environments should not be reduced to active mobility. The effect of health-enhancing environments should be taught on a more global scale. Several Swiss initiatives and organizations show how this could be done.

#### 4.1.3 Swiss initiatives and organizations

In Switzerland, several organizations and institutions recognize the potential of health-enhancing environments, and promote this concept on a global scale. The project “moving commune,” described in chapter 1.2, for example, started with a pilot project in ten different communes, from 2011 to 2013. “The aims of this project were:

- To optimize the infrastructures for movement in communes.
- To implement a consulting service and a set of measures in ten communes.

- The participation of the population.
- To use the findings for a multiplication of the project” (Zihlmann et al., 2013, p.5).

After this pilot project, the developed tools were adapted and optimized for use by other communes in the canton St. Gallen. Every commune in St. Gallen can benefit from consultation with this experienced organization when planning movement-friendly environments. On a national level, “public health services” and “Mobilité piétonne Suisse” (see chapter 4.4.2) try to implement the concept of “moving communes” in already existing programs; for example, the project “Via – Best practice, health promotion in old age” (Zihlmann et al., 2013) does this. Sabina Ruff, project coordinator of this pilot project, has passed on her knowledge in the Bachelor of Landscape Architecture in Rapperswil since 2019.

In this project communes can get advice and specific tools when creating movement-friendly environments, but they do not get labeled for implementing such measures. However, labels for healthy communes do exist in Switzerland. The label “commune en santé” lists all the existing measures that promote health in the commune, and advises the communes on how to improve their inhabitants’ health. The actions taken to promote health should be labeled; however, this label is only available in five French speaking cantons (Vaud, Genève, Jura, Valais, Fribourg). To get a label, measures in six different domains need to be realized. One of these domains is “public spaces and infrastructure,” which aims to create infrastructure that encourages health. There is no requirement to build activity-friendly environments in order to get labeled, but PA-promoting environmental measures, such as cycling routes, are a part of the requirement (*Commune En Santé*, n.d.).

Radix, a Swiss health foundation, does not label healthy communes but instead helps communes and cities develop measures that allow for healthy living conditions. Every second year, communes and cities that have committed to a long-term health promotion plan can get nominated for the “healthy communes/city prize.” By getting nominated or winning this prize, communes and cities are allowed to use a logo which indicates that they are a healthy commune or city. In contrast to the label “healthy communes,” this prize is valid for all Swiss communes (*RADIX*, n.d.).

Another project, “environnements favorables à la santé,” was launched in 2016 by “Promotion santé Vaud,” and is now run by “Unisanté,” the university center for general medicine and public health. This project aims to identify and promote

structural health promoting measures that lead to healthy environments. It focuses on environments that act on the four determinants of non-communicable diseases: PA, food, tobacco and alcohol. A group of experts from different domains created a list of measures for how to implement the ideals of healthy environments in real projects. The experts who contributed to this project are listed on the website (*Environnements favorables à la santé*, n.d.).

These projects show that health-promoting environments are present on a scientific and political level, and that expertise in this domain exists. It is exactly this expertise that could be used by universities to integrate this subject into their DPs.

Although Switzerland is a very small country, it already has different organizations and projects that promote healthy environments. Some are only available in the French speaking part of Switzerland, others only in the German speaking part, and a few in the Italian speaking part. But there is no organization that combines the knowledge from all the linguistic regions of Switzerland. To achieve this, a project like “environments favorable à la santé” would be needed on a national level, combined with a label or a prize like “healthy communes,” and the tools of “moving-commune.” All Swiss communes would benefit from this offer, and the subject would get more attention on a national level in politics. Other countries already have organizations that promote active design. For example, there is the “center for active design” in the United States, and the “Société francophone de santé et environnement” in France. If such an organization existed in Switzerland, it could make this topic more popular and maybe universities start to educate their students in this field.

It is interesting that the design of houses is usually not mentioned in these projects, labels or organizations. This is probably because the design of houses isn't considered to have an influence on our health, or because many houses are generally built by private companies, and not by the communes or cities. Because active design in houses is not very common, this subject will be discussed individually in the next chapter.

## 4.2 Architecture

Not only in politics, but also in the Swiss architecture DPs, the impact architects can have on non-communicable diseases by promoting PA through building design is not well known. No architecture DP teaches the full relation between BE, PA and health. Only five out of seventeen DPs indicated having courses which teach this relation. But after a closer look, even if PA is mentioned in a course, no link to the health benefits of PA is being made. The courses at ETH Zurich in which PA is mentioned are courses about landscape architecture, and do not talk about promoting PA inside buildings. Design studios were reported to mention this relation. But as the projects of these studios change every year, and because not all students take the same design studios, it is most likely not a subject that is present in every student's mind. Other courses indicating a mention of the importance of BE on our health in general tend to focus on health parameters like ergonomic furniture, air quality or chemicals, and not PA.

It is not surprising that the influence of the BE on PA is not very common in architecture DPs, when you look at the small amount of scientific literature that exists in this area. Most of the research focuses on urban planning and how to structure neighborhoods, streets and cities so they promote PA. But according to Klepeis et al. (2001), most people in the USA spend 90% of their time inside. In Switzerland this number may be different, but when people are working in an office they spend more than eight hours per day inside. In addition, they also spend time in other buildings, like their own home. People who work in an office spend most of their time inside, so they depend a lot on the way their indoor environment is designed. This means that architects who plan offices plan the environment where people spend most of their time. For this reason, architects should be aware of this subject and the power they have over daily PA behaviors and health. One of the challenges for active design recognized by Dannenberg & Burpee (2018) is that “few architects learn about the health implications of design in their initial formation.” The same was confirmed in this research. But on an international level, there are already few architecture DPs including this subject in their curriculum.

### 4.2.1 Examples of architecture DPs including health and PA

At the “*école nationale supérieure d'architecture Montpellier*,” a specialized master's DP in architecture, territory and health was offered in 2018. As pathologies of non-communicable diseases are linked to the organization of

space, those responsible for this DP make sure the graduates are not only architects but also health ambassadors. Considering this, the objectives of this master's DP were:

- Teaching methods and tools allowing the construction of a quality living environment.
- Integrating studies showing the impact of health.
- Promote the sharing of interdisciplinary knowledge of professionals in the field of health, architecture, urbanism, etc. in the process of decision making.

This “Mastère spécialisé” addresses architects, urban planners, directors of health institutions, health professionals, and project owners (Appendices, 8.6.16). Unfortunately, no confirmation was obtained for how PA is included in this specialized master; but the fact that an architecture master's focuses on health issues is a visionary idea.

At the University of Cambridge, in the architecture department, professor Koen Steemers teaches the course “health and wellbeing in architecture” for architecture students. In his course he defines health, explains the relation between BE and health, and shows that architecture impinges on our health. He uses the ‘five ways to wellbeing’ to show how architecture and neighborhood design relates to wellbeing (Appendices, 8.7.6). The ‘five ways to wellbeing’ are:

- Connect
- **Keep active**
- Take notice
- Keep learning
- Give

(The new economics foundation, 2008).

How the five ways of wellbeing can be connected to architecture is illustrated in the course by an example from an existing building. Similar examples as shown in the literature, for how the “keep active” step can be implemented in architecture are presented in the course description. According to the description, these determinants lead to an active design environment: accessible, dense, mixed use and walkable neighborhoods, stair use, attractive circulation space and separate key spaces to encourage movement. In this course about environmental design, students learn how the scientific literature proposes to promote PA in buildings, why it is important to do so and how it can be put into practice. They learn how to

keep building occupants healthy and active. PA is not the main feature of his courses, but it is mentioned as a subtopic in a couple of his courses about health (Appendices, 8.6.17).

Gayle Nicoll, an architect doing research about active design, teaches this subject in an environmental design DP at the Ontario College of Art and Design (OCAD) in Canada. However, she teaches active design not by itself but aligned with other subjects. In a research method course, for instance, active design is used as an example to show “how foundational research and a priori research is used through research translation to create policies such a programming requirement, guidelines and occasionally building code requirements (like the New York City building code)” (Appendices, 8.8.5). In another course, “design for health,” active design is part of the second semester’s content. According to Gayle Nicoll, specific courses or studios on active design are not necessarily needed in architectural education. But she encourages the topic to be “included in any course that focuses on sustainability, accessibility and diversity, health and even the history of urban environment since the greatest achievements in combatting infectious disease in the first half of the 20th century were achieved through environmental initiatives before the start of the pharmaceutical era” (Appendices, 8.8.5).

These examples show that the relationship between the BE and PA does not necessarily demand a specific course on this subject. But what definitely needs to be a part of any architecture DP is a course introducing current health issues and the effect of the BE on our health. In this course PA should then be part of the content.

Even if no specific course about the association of PA and the BE exists, it could somehow be integrated into existing courses about sociology, sustainable development or history of architecture, and it can be included in design studios as well. A course about this topic could be structured in the following way:

- The influence of architects on health in the past.
- The current inactivity epidemic and the health consequences.
- What is PA and the effects of PA on non-communicable diseases?
- How does the BE influences PA?
- Which parameters can be modified by an architect?

- Showing some existing examples of active designs (e.g. staircase, visibility, attractive circulation space, individual building elements like showers, surroundings of the building, accessibility and policies).

No drastic change is needed to implement this subject into an architecture DP. The work itself does not change for an architect who designs a building that promotes PA. However, the problems of our inactive lifestyle and the chances of architects to promote PA and health need to be introduced. And afterwards it can be mentioned again in courses on other subjects, like design studios or a research method course.

How exactly does a building that was built after a PA-promoting concept influence the daily PA time of its occupants is not well known. To increase knowledge in this area, more research needs to be done. But the idea and possibilities should definitely be introduced in every architecture DP. Additionally, the students need to be taught how to combine active design with other regulations, like the SIA 500 standard.

#### 4.2.2 Conflict with the SIA 500 standard “barrier-free construction”

A PA-promoting building can conflict with the SIA 500 standard “barrier-free construction”. This norm defines how to design a building in Switzerland so that people, who are put into a handicapped situation, can still use the building without barriers. But the concept of a barrier-free design and a PA-promoting design should not be seen as two contradictory concepts. A barrier-free design house can still have an attractive staircase, good visibility, circulation space, and inviting surroundings – as suggested by the literature (Nicoll, 2007). Although the stairs should be the first thing seen from the entrance, escalators can still exist in a building, just located further away. If less people use the escalators, they are better available for people who actually need them. In fact, if a building promotes PA not only for pedestrians, but also for people in a situation of handicap, it can be seen as an advantage for both of them.

#### 4.2.3 Active design label

Although the active design is a feasible tool to improve the health of buildings’ occupants, it is rarely taught in the architecture DPs. One reason why this concept is not taught can be the missing knowledge about this issue, but also the high



barriers for a new concept to be included in architecture DPs. Even if a new concept is proven to be useful, it is still complicated to implement it in a university DP. This can be illustrated by the example of Minergie. “Minergie is a label for low-energy-consumption buildings; it is a sustainability brand for new and refurbished buildings” (Vogt, 2009, p.24). Thirty years ago “sustainable development was not a topic in the curriculum of an architect” (Vogt, 2009, p.22). It was only recognized by a handful of pioneers, and although many architects were aware of the problems of growing energy consumption, it was rarely mentioned as a priority in architecture. The concept of Minergie was first developed in 1994 and the Minergie association was founded in 1998. In the same year, the first standard for low-energy-consumption buildings was published. Ten years later the concept of sustainability was more well known by the architect community. For many universities it became a trend that every student had to be aware of this topic (Vogt, 2009). Twenty years after the founding of the Minergie association, 45'000 buildings were certified with the Minergie label (Association Minergie, 2018). This shows that before a new concept will be included in the architecture DPs, it needs first to become well known in Switzerland. The concept of active design is now maybe at the point where the sustainability concept was thirty years ago, and only some pioneers recognize the potential of it at this point. The example of the Minergie label shows that the creation of an association that promotes the concept in the architecture community, as well as in politics, could lead to a label for health-promoting buildings. To receive a health-promoting label, prescribed health measures need to be implemented, and a part of this label would be the integration of PA-promoting measures. This label could be compared to or seen as an addition to the labels for communes and cities that implement health-promoting measures (see chapter 4.1.3).

To be able to create a label and to prove the effects of a labeled building, more research needs to be done to know which practical measures lead to the promotion of PA and health for its users. Therefore, the universities need to do more research. As shown by the example of Minergie, a new concept first needs to be proven to be efficient, and then made well known in the whole country. Without more knowhow about the exact effect of a house built after a certain standard, it will be difficult to convince architects to implement a new idea in their plans.

The concept of active design definitely has potential to be included in future architecture more often, as well as in urbanism and landscape architecture projects. An obstacle for professionals of all three disciplines remains the additional cost of active design. Additionally to the cost, the missing general term for this concept makes it harder for these professionals to explain it to their costumers. These two obstacles and how to overcome them are discussed in the next sub-chapters.

### **4.3 Affordable Active Design**

Health promoting measures are often associated with additional costs. This does not necessarily need to be the case for PA-promoting environmental measures. The “Active Design: Affordable Designs for Affordable Housing” guideline, which is a supplement to the New York City's “Active Design Guidelines”, and which aims to provide healthier environments in low-income neighborhoods, demonstrates this fact (OCAD University et al., 2013). It is known that environmental interventions in low-income neighborhoods are even more effective than in high-income neighborhoods. The association of the BE and PA in Switzerland is more pronounced in young people from low socioeconomic areas than their peers from higher socioeconomic areas (Bringolf-Isler et al., 2014, 2019). In these neighborhoods, a movement-friendly environment needs to be promoted even more, because it is known that Swiss adolescents from low-income households move less than adolescents from high-income households (Lamprecht et al., 2015). Young people from low-income households are two times more likely to be inactive than their peers from high income households (Lamprecht et al., 2015). For this reason, the promotion of a BE which leads to more PA has enormous potential, especially in low-income neighborhoods. And the guideline for active design in affordable housing show how active design can be implemented in feasible and low-cost ways. This guideline presents different measures, from cost-neutral to more ambitious but still realizable strategies. Low-cost strategies can include the co-location of adults and children’s PA facilities, the provision of secure bicycle storage, painted markings in playgrounds and walkways, and the provision of stair signage. Strategies with little additional cost include the accessibility and visibility of stairwells from the building entrance, the provision of direct paths between common areas, physical activity facilities, and safe and positive recreational activities for children of all ages. More ambitious strategies include the expansion of indoor and outdoor facilities to support

activities for children, youths and families (OCAD University et al., 2013). With the aid of 11 case studies, the authors showed how these measures were implemented in actual projects. The additional cost for an active design varied in these 11 projects from -0.5% to 1.6% of the development costs. A more visible and better placed staircase can be realized with little additional cost, if the concept is implemented from the beginning of the designing process (OCAD University et al., 2013).

With these proposed low-cost strategies, measures that promote PA can be implemented without additional costs. Students of architecture, landscape architecture and urbanism DPs should be made aware of the possibility of implementing these measures without many additional costs. Furthermore, politicians need to promote movement-friendly environments, especially in low socioeconomic neighborhoods, because it has probably a bigger effect there.

#### **4.4 The missing term for an activity-promoting environment**

The second obstacle to active design becoming popular in Switzerland is a missing general term for this concept. In Switzerland several players in politics, such as the Federal Office of Public Health (2016), the Federal Office of Sport (2001), the Federal Office for Spatial Development (2014), and even the Swiss Federal Council (2016) are aware of the environment's influence on our health. In architecture, landscape architecture, and urbanism, there is literature showing the positive effect of a BE that promotes PA on our health (Grob et al., 2009; Van Holle et al., 2012; Zimring et al., 2005), and several best practices in all areas already exist. But still the subject has not yet become popular enough to be included in every curriculum. One reason could be that no general term exists in Switzerland that describes this concept. Because of its diversity many different terms for environments that promote PA are being used, which makes the identification of this subject very difficult. And this could also be the reason why the concept itself is not really known in the academic community. In the French-speaking part of the country, there are the organizations "environnements favorables à la santé" and "commune en santé." Both aim to promote healthy environments in general, with PA as a part of it. They use the term "un environnement construit favorable à l'activité physique" (BE which encourages PA). In German the terms "bewegungsfreundliches Umfeld" (moving-friendly environment), or "strukturelle Bewegungsförderung" (structural promotion of PA),

are often used. Additionally, the terms “active mobility” or “pedestrian traffic” can be used in the context of movement-friendly environments. And in English the term “active design” is commonly used.

This variety in Switzerland shows that there is no general term for an environment that promotes PA. Depending on where the focus is put, different terms are used. No universal and short term exists in Switzerland that could be used for all linguistic regions. The German term “strukturelle Bewegungsförderung” summarizes this concept in the best way but it is still a complicated and long term. On top of that, it cannot be translated very well into French or Italian. A brand name, like “ConstrActive,” which can be used in all linguistic parts of Switzerland, and of which everybody knows the exact meaning, would help to better promote this concept. The same was achieved with the “Minergie” term. This would also simplify the creation of a national organization (chapter 4.1.3) promoting all sorts of “structural movement promotion.”

#### **4.5 Active environment in Switzerland**

The health burden of physical inactivity is not well understood in the planning community. The subject of health is still not well integrated in urban projects and in the culture of planning professionals. Houssin (2020) came to the same conclusion in his Master thesis analyzing how planning professionals in Lausanne approach health in their projects and confirmed that the subject of health is not very commune among planning professionals. It would be interesting to see why this subject is not really present in the Swiss planning DPs and further research in this direction needs to be done to understand the reasons. But one thing is clear, the potential to improve the conditions for a healthy life and to increase health by planning movement-friendly environments in Switzerland is big. And according to the Federal Office of Public Health, this potential can “only be utilized if all policy areas make an additional contribution to health in the years ahead. In the interest of policy coherence, health concerns must be proactively incorporated in sectoral policies. A more comprehensive and coherent approach to policy-making is required at a federal level in order to exploit synergies and to support the development of a comprehensive health policy” (Federal Office of Public Health (FOPH), 2019, p.25). At the same time, these synergies need to be used at the universities and in the different programs playing a role in the creation of healthy environments. At two thirds of the universities of the analyzed DPs,

courses about health, public health or epidemiology already exist in other departments. An exchange between the departments educating health professionals and the departments educating city or building planners must be encouraged. And this exchange needs to be done in two ways: health professionals need to learn more about the possibilities of building healthy environments, and planning professionals need to learn more about their influence on health. Students at universities should be taught that it is not complicated to build an environment that promotes PA. Even small changes can have an impact on people's PA behavior. And on top of that, most measures that promote PA have additional positive effects on our wellbeing and climate. Further, the inclusion of movement-friendly environments would not drastically change the job of an architect, landscape architect or city planner. If they are aware of the relation between the BE and PA, they can incorporate these measures from the very beginning of the project. It is important that these professionals want to contribute to the promotion of PA and they need to be taught about the problems resulting from inactivity during their studies, and get to know some best practices. To take action they need to understand why it is important and what they can do about it as architects, urban planners and landscape architects. A prerequisite for this subject to be implemented in the DPs is of course that the professors recognize the moving-friendly environment concept and that they acknowledge the inactivity epidemic as an acute problem for our society. The importance of incorporating this concept into the studies of future planning professionals is also highlighted by the commission "Prevention, Sport and Health" (chapter 1.4) as one of their measures to respond against the growing problem of physical inactivity in France. The commission "sees the architects, urban planners and landscape architects as partners and propose introduction courses in their formation. The relation between health - urbanism and health – architecture needs to be taught to the students of these formations" (Commission Prévention, Sport et Santé, 2008, p.227).

## 5. Limitations

Several limitations need to be considered in this Master thesis. One of the main limitations of this study was the questionnaire. Those responsible for the DPs were asked to identify courses where the relation between the BE, PA and health is taught. But no definition was given for PA. This led to confusion, as sometimes exercise was equated with PA. Especially in the Swiss German culture, PA is often equated to sport. The difference between PA and sport is not obvious for everybody. Some of the respondents noted courses where PA is mentioned, but where no link to health is made. An additional limitation was that the respondents did not always know exactly what their colleagues teach in their courses, and did not always have detailed information about the actual course content. For this reason, courses that might mention the investigated subject as an aside could have slipped through this analysis. For those courses, where no further course content was received, the only way to find out if this subject is taught, would have been to attend the courses in person.

For architecture and landscape architecture, only bachelor's and master's DPs were analyzed, whereas for urbanism the MAS was added to the analysis. It cannot be ignored that there are MAS or doctoral programs in other fields where this relation gets more attention than in the bachelor's and master's DPs.

## 6. Conclusion

It is known that the BE influences our PA behavior and therefore has an impact on the leading cause of mortality – NCDs. The promotion of movement-friendly environments is a promising application area for the promotion of PA and health. Although the concept of active design in Switzerland is present in several realized projects, different organizations, and promoted by various Federal Offices, it is rarely taught in the Swiss architecture, landscape architecture and urbanism DPs. Out of 30 analyzed DPs, only five teach the full relation between the BE, PA and health. In no architecture DP was it confirmed that students are made aware of the effect our BE has on PA and on health. In contrast, nearly all of the landscape architecture DPs teach the importance of promoting PA when building environments. But the reason why PA is important to our health is not always mentioned. The same goes for the urbanism DPs. The importance of PA in our society has indeed become a part of urban planning degrees. However, in the courses, the focus is mainly on the technical part, on how to provide infrastructure

that promotes PA, without considering the health aspect. The deeper reasoning behind the promotion of movement-friendly environments, and the fact that it positively affects our health, is only fully developed in five DPs. This shows that a lot of students of all three formations are not aware of the consequences physical inactivity has on our health, and of how they can have an impact on our health by planning movement-friendly environments. To overcome this lack of knowledge about health and PA, universities should cooperate with experts in this field and use their knowledge in DP courses. Several Swiss projects can be used as examples, and different organizations can provide the needed knowledge. But these organizations could also be an obstacle to the promotion of this concept, because they do not bundle their effort to promote this idea in the whole country. On top of that, their understanding of a BE that promotes PA varies from one organization to the other. And that's maybe also the reason why they all use different terms for this concept. This is why this concept should be promoted on a national level, through an organization which pools all the existing knowledge and keeps pushing the research to enable a better understanding of how the BE influences our PA behavior. Additionally, they should award projects that implemented such measures by creating a Swiss-wide label, like it exists for Minergie. On top of that, this organization should promote this concept on a political level and point out its possibilities, especially for low-income neighborhoods and low-income housing. It should be shown that measures that promote PA could be incorporated with little additional costs. To promote this concept in Switzerland, experts of different sectors need to work together; an interdisciplinary cooperation between doctors, sports scientists, epidemiologists and planning professionals needs to be encouraged. To form these specialists, the relationship between the BE, PA and health needs to be introduced in their studies, especially in the architecture, landscape architecture and urbanism DPs.

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## 8. Appendices

From 8.1 to 8.5 the responses of the questionnaire are displayed. 8.1 is the information about the respondents. 8.2 are the answers for question one, 8.3 for question two, 8.4 for question three, and 8.5 for question four.

In 8.6 all the listed course descriptions are shown with the respective link to their source.

In 8.7 all the course material mentioned in the study is shown. Only some parts of the course are listed. Only those slides that proved relevant are inserted.

In 8.8 all the e-mails used to get further information are listed.

## 8.1 Questionnaire - Respondents

University	Degree program	Role at the university	Role at defining DP
HSR	Landscape architecture	Studiengangleiter	Entscheider
Hochschule Luzern Technik & Architektur	Architecture	Studiengangleiter Ba Architektur	Als Studiengangleiter habe ich eine prägende Rolle
HSR Rapperswil	Urbanism	Prof.	Mitsprache
Fachhochschule St.Gallen, Bachelor-Studiengang Architektur	Architecture	Leitung Finanzen und Administration	Ich erstelle die Stundenpläne
HSR Rapperswil	Urbanism	Prof. für Städtebau und Profilleiter Master "Raumentwicklung & Landschaftsarchitektur"	Gleichwertige Mitsprache mit Kollegen
ETH Zürich	Architecture	Studienkoordinator	Mitarbeit in administrativer und koordinativer Hinsicht
ETH Zürich	Architecture	Studienkoordinator	Mitarbeit in administrativer und koordinativer Hinsicht
ZHAW	Architecture	Leiter Studierendenwesen	Ja
ZHAW	Architecture	Leiter Studierendenwesen	Ja
HSR Rapperswil	Urbanism	Dozent für Verkehrsplanung	Verantwortung für Lehre in der Verkehrsplanung
ETH Zürich	Landscape architecture	Studienkoordinatorin Masterstudiengang Landschaftsarchitektur	Gemeinsam mit den Professoren des Instituts und dem Studiensekretariat des Departements Architektur bin ich an der Definition der Studienpläne beteiligt.
Berner Fachhochschule BFH	Architecture	Studiengangleiter Master Architektur, Professor für Architektur und Entwurf	Konzept, Verantwortung
Hochschule Luzern - Soziale Arbeit	Urbanism	Dozentin und Projektleiterin, Co-Leiterin MAS Gemeinde-, Stadt- und Regionalentwicklung	inhaltliche Konzeption eines MAS-Studiengangs mit zwei Pflicht-CAS-Studiengängen
FHNW Nordwestschweiz	Architecture	Studiengangleiter	Studiengangleiter
BFH	Architecture	Stueeingangleiter	Definition
Fachhochschule Nordwestschweiz	Architecture	Leitung Studierendenwesen am Institut Architektur	Keine wesentliche Rolle
FH Graubünden	Architecture	Course director	Definition
Hochschule Luzern, Technik & Architektur	Architecture	Institutsleiter, Studiengangleiter Master	Konzeptueller Lead
UNIL	urbanism	Professeur ordinaire	Coordinateur de l'orientation Urbanisme durable et aménagement des territoires, master de géographie
EPFL	urbanism	Directeur de la section des Sciences et ingénierie de l'environnement et responsable du mineur Développement territorial et urbanisme	cf. ci-dessus
hepia	architecture	responsable de filière, professeur	central
EPFL	architecture	Adjointe à la direction de la Section d'ARchitecture ENAC EPFL	Coordination
EPFL	architecture	Adjointe à la direction de la Section d'ARchitecture ENAC EPFL	Coordination
SUPSI	architecture	Responsable de la filière architecture	Je participe de manière active à la définition du plan d'étude
Université de Genève	urbanism	Conseillère aux études	Coordination, gestion
unige	urbanism	enseignant	participe avec beaucoup d'autres à son élaboration
unige	urbanism	enseignant	participe avec beaucoup d'autres à son élaboration
HEPIA filière Architecture du Paysage	landscape architecture	Responsable Filière Bachelor et MAster	responsable élaboration et suivi profil de compétences formation architectes paysagiste
haut école d'ingénierie et d'architecture fribourg	architecture	responsable	definiton

## 8.2 Questionnaire – Question 1

University	Degree program	Question 1	Name of the course	In which module/DP is this course held	Is course material available
HSR	Landscape architecture	Yes	Entwurfsmodule, Landschaftsentwicklungsmodule, Freiraumplanung	Landschaftsentwicklung	oui
Hochschule Luzern Technik & Architektur	Architecture	No			
HSR Rapperswil	Urbanism	Yes	Bewegungsfreundliche Siedlungsräume	Städtebau / Freiraumplanung für BSc Studierende Raumplanung und Landschaftsarch.	No
Fachhochschule St.Gallen, Bachelor-Studiengang Architektur	Architecture	No			
HSR Rapperswil	Urbanism	No			
ETH Zürich	Architecture	No			
ETH Zürich	Architecture	No			
ZHAW	Architecture	No			
ZHAW	Architecture	No			
HSR Rapperswil	Urbanism	No			
ETH Zürich	Landscape architecture	Yes	Neue Stadtlandschaft und Gesundheit / Grundlagenstudio II	Masterstudiengang Landschaftsarchitektur	oui
Berner Fachhochschule BFH	Architecture	No			
Hochschule Luzern - Soziale Arbeit	Urbanism	No			
FHNW Nordwestschweiz	Architecture	No			
BFH	Architecture	No			
Fachhochschule Nordwestschweiz	Architecture	No			
FH Graubünden	Architecture	No			
Hochschule Luzern, Technik & Architektur	Architecture	No			
ETH Zürich	Urbanism	Yes	Fuss- und Veloverkehr	Raumentwicklung und Infrastruktursysteme	oui
UNIL	urbanism	Yes	Mobilité durable: pratiques, aménagements, stratégies (MOPAS)	Orientation Urbanisme durable et aménagement des territoires, master de géographie	Oui
EPFL	urbanism	Yes	Santé environnementale, santé au travail	SIE	Oui
hepia	architecture	No			
EPFL	architecture	No			
EPFL	architecture	No			
SUPSI	architecture	No			
Université de Genève	urbanism	Yes	Environnement et Santé	Master en sciences de l'environnement (MUSE)	Oui
unige	urbanism	No			
unige	urbanism	No			
HEPIA filière Architecture du Paysage	landscape architecture	Yes	Module à choix : place de jeux et nature Module à choix : agriculture urbaine / problématique local et alimentaire Module à choix : mobilité Cours théorique technique appliquée : personne à mobilité réduite et espace public Cours théorique technique appliquée : mobilités douces Module de cours sociologie des espaces publics	Module de cours sociologie Cours théorique technique appliquée Modules à choix	Oui
haut école d'ingénierie et d'architecture fribourg	architecture	No			

## 8.3 Questionnaire - Question 2

University	Degree program	Question 2	Name of the course2	In which module/DP is this course held2	Is course material available2
HSR	Landscape architecture				
Hochschule Luzern Technik & Architektur	Architecture	No			
HSR Rapperswil	Urbanism				
Fachhochschule St.Gallen, Bachelor-Studiengang Architektur	Architecture	No			
HSR Rapperswil	Urbanism	Yes	Kommt thematisch in mehreren Vorlesungen vor (z.B. Freiraum-Versorgung, oder "Sport-Ort"	Vorlesung "Städtebau2-Freiraumplanung1" und "Städtebau3"	No
ETH Zürich	Architecture	Yes	Landschaftsarchitektur I und II, Entwurf V - IX (Prof. Girot und Vogt), Grundlagenstudio I	Bsc Architektur, MSc Landschaftsarchitektur	oui
ETH Zürich	Architecture	Yes	Landschaftsarchitektur I und II, Entwurf V - IX (Prof. Girot und Vogt), Grundlagenstudio I	Bsc Architektur, MSc Landschaftsarchitektur	oui
ZHAW	Architecture	No			
ZHAW	Architecture	No			
HSR Rapperswil	Urbanism	Yes	In der Verkehrsplanung in den Vorlesungen zum Fuss- und Veloverkehr	Landschaftsarchitektur, Bauingenieurwesen, Stadt- Verkehrs- und Raumplanung	oui
ETH Zürich	Landscape architecture				
Berner Fachhochschule BFH	Architecture	Yes	keine Vorlesungen, sondern Thema in div. Projekttateliere Architekturentwurf	siehe oben	No
Hochschule Luzern - Soziale Arbeit	Urbanism	Yes	CAS Gemeinde- und Stadtentwicklung im Wandel	Das Thema "gesunde Gemeinde" und Gesundheitsförderung beispielsweise durch die Planung und Aufwertung öffentlicher Räume ist implizit Thema im CAS. Im Vordergrund steht in unseren Weiterbildungsangeboten die Fähigkeit zur Prozessgestaltung und -begleitung von Prozessen in der Gemeinde-, Stadt- und Regionalentwicklung (GSR). Denkbar wäre im Rahmen unseres MAS-Studiengangs das Thema gebautes Umfeld, körperliche Aktivität und Gesundheit in einer Master-Thesis zu untersuchen mit Bezug zum GSR-Bereich.	No
FHNW Nordwestschweiz	Architecture	Yes	Sozialwissenschaft	Sozialwissenschaft	No
BFH	Architecture	Yes	Entwurfateliers (evtl. Planung)	Entwurf	No
Fachhochschule Nordwestschweiz	Architecture	No			
FH Graubünden	Architecture	No			
Hochschule Luzern, Technik & Architektur	Architecture	No			
ETH Zürich	Urbanism	Yes	Landschaftsarchitektur I und II	Raumentwicklung und Infrastruktursysteme	oui
UNIL	urbanism				
EPFL	urbanism				
hepia	architecture	No			
EPFL	architecture	No			
EPFL	architecture	No			
SUPSI	architecture	No			
Université de Genève	urbanism				
unige	urbanism	Yes	je pourrai lister à peu près tout les ateliers du cursus dans la mesure tant le lien environnement construit, activité physique et santé est devenu une dimension du projet.	CAS	Non
unige	urbanism	Yes	je pourrai lister à peu près tout les ateliers du cursus dans la mesure tant le lien environnement construit, activité physique et santé est devenu une dimension du projet.	il ne s'agit pas d'un cours mais d'une dimension du projet, donnant lieu à des apports thématiques dans le cadre des ateliers.	Non
HEPIA filière Architecture du Paysage	landscape architecture				
haut école d'ingénierie et d'architecture fribourg	architecture	No			

## 8.4 Questionnaire – Question 3

University	Degree program	Question 3	Name of the course3	In which module/DP is this course held3	Is course material available3
HSR	Landscape architecture	No			
Hochschule Luzern Technik & Architektur	Architecture	No			
HSR Rapperswil	Urbanism	No			
Fachhochschule St.Gallen, Bachelor-Studiengang Architektur	Architecture	Yes	Das ist im Studiengang Pflege. Weiss ich nicht genau.	BSc Pflege	No
HSR Rapperswil	Urbanism	No			
ETH Zürich	Architecture	Yes	Andere Departemente	siehe vvz.ethz.ch	No
ETH Zürich	Architecture	Yes	Andere Departemente	siehe vvz.ethz.ch	No
ZHAW	Architecture	No			
ZHAW	Architecture	No			
HSR Rapperswil	Urbanism	No			
ETH Zürich	Landscape architecture	Yes	Neue Stadtlandschaft und Gesundheit	Masterstudiengang Landschaftsarchitektur	oui
Berner Fachhochschule BFH	Architecture	Yes	Module in anderen Departementen der BFH: z.B. Gesundheit resp. soziale Arbeit	siehe oben	No
Hochschule Luzern - Soziale Arbeit	Urbanism	Yes	MAS Prävention und Gesundheitsförderung	eigens Masterprogramm	oui
FHNW Nordwestschweiz	Architecture	Yes	Gesundheitsförderung und Prävention als Aufgaben der Sozialen Arbeit	VR Gesundheit und Krankheit: Soziale Arbeit	No
BFH	Architecture	Yes	Gesundheit, soziale Arbeit	gesundheit	No
Fachhochschule Nordwestschweiz	Architecture	No			
FH Graubünden	Architecture	No			
Hochschule Luzern, Technik & Architektur	Architecture	No			
ETH Zürich	Urbanism	Yes	Sozialwissenschaftliche Gesundheitsforschung: Ein thematischer Ein- und Überblick	Gesundheitswissenschaften und Technologie Bachelor	
UNIL	urbanism	Non			
EPFL	urbanism	Yes	Voir avec les Sciences de la vie Aussi: Exploratory Data Analysis and geovisualization	Sciences de la vie et SIE	Oui
hepia	architecture	Non			
EPFL	architecture	Yes	Il y a certainement ce genre de cours en sciences du vivant ou Sciences humaines et sociales, mais je ne suis pas la bonne personne pour répondre sur ce point.	Je ne sais pas.	Non
EPFL	architecture	Yes	Il y a certainement ce genre de cours en sciences du vivant ou Sciences humaines et sociales, mais je ne suis pas la bonne personne pour répondre sur ce point.	Je ne sais pas.	Non
SUPSI	architecture	Yes	La SUPSI étant pratiquement comme la HES-SO pour la suisse Romande dans les filières de santé il y a sûrement des cours qui traitent les thèmes de la santé. Malheureusement ces cours sont en dehors du département dans lequel se trouve la filière architecture et je ne peux pas vous indiquer de manière précise les intitulés des cours.		Oui
Université de Genève	urbanism	Yes	SPACE-Geography	Master en sciences de l'environnement	Oui
unige	urbanism	Yes	Cf. : <a href="https://wadme.unige.ch:3349/pls/opprg/w_rech_cours.resultat_rech?p_cn_individu=517585&amp;P_ANNEE=2019">https://wadme.unige.ch:3349/pls/opprg/w_rech_cours.resultat_rech?p_cn_individu=517585&amp;P_ANNEE=2019</a>	Master universitaire en science de l'environnement	Non
unige	urbanism	Yes	Cf. : <a href="https://wadme.unige.ch:3349/pls/opprg/w_rech_cours.resultat_rech?p_cn_individu=517585&amp;P_ANNEE=2019">https://wadme.unige.ch:3349/pls/opprg/w_rech_cours.resultat_rech?p_cn_individu=517585&amp;P_ANNEE=2019</a>	Master universitaire en science de l'environnement	Non
HEPIA filière Architecture du Paysage	landscape architecture	Non			
haut école d'ingénierie et d'architecture fribourg	architecture	Non			

## 8.5 Questionnaire – Question 4

University	Degree program	Question4	Name of the course4	In which module/DP is this cours held4	Is course material available4
HSR	Landscape architecture	No			
Hochschule Luzern Technik & Architektur	Architecture	No			
HSR Rapperswil	Urbanism	No			
Fachhochschule St.Gallen, Bachelor-Studiengang Architektur	Architecture				
HSR Rapperswil	Urbanism	No			
ETH Zürich	Architecture				
ETH Zürich	Architecture				
ZHAW	Architecture	No			
ZHAW	Architecture	No			
HSR Rapperswil	Urbanism	No			
ETH Zürich	Landscape architecture				
Berner Fachhochschule BFH	Architecture				
Hochschule Luzern - Soziale Arbeit	Urbanism				
FHNW Nordwestschweiz	Architecture				
BFH	Architecture				
Fachhochschule Nordwestschweiz	Architecture	No			
FH Graubünden	Architecture	No			
Hochschule Luzern, Technik & Architektur	Architecture	No			
ETH Zürich	Urbanism				
UNIL	Urbanism	No			
EPFL	Urbanism				
hepia	Architecture	No			
EPFL	Architecture				
EPFL	Architecture				
SUPSI	Architecture				
Université de Genève	Urbanism				
unige	Urbanism				
unige	Urbanism				
HEPIA filière Architecture du Paysage	landscape architecture	No			
haut école d'ingénierie et d'architecture fribourg	Architecture	No			

## 8.6 Study descriptions

### 8.6.1 Architecture – ETH

## 052-1128-19L Architectural Design V-IX: The Dark Side of the Sihl (Ch. Girot)

Semester	Frühjahrssemester 2019
Dozierende	<b>C. Girot</b>
Periodizität	jährlich wiederkehrende Veranstaltung
Lehrsprache	Englisch
Kommentar	Please register ( <a href="http://www.mystudies.ethz.ch">www.mystudies.ethz.ch</a> →) only after the internal enrolment for the design classes (see <a href="http://www.einschreibung.arch.ethz.ch/design.php">http://www.einschreibung.arch.ethz.ch/design.php</a> →).  Project grading at semester end is based on the list of enrolments on 5th April 2019, 24:00 h (valuation date) only. Ultimate deadline to unsubscribe or enroll for the studio is 5th April 2019, 24:00 h.

Katalogdaten	Leistungskontrolle	Lernmaterialien	Lehrveranstaltungen	Gruppen	Einschränkungen	Angeboten in	Übersicht
Kurzbeschreibung	The last stretch of the Sihl runs between the Main Station and the Kornhaus tower in Zürich. Located at the center of town, the river offers great landscape potential for promenade, leisure and bathing. Through advanced 3D modeling techniques students will develop a visionary landscape project that strengthens the relationship between the city, its inhabitants and the dark side of the Sihl.						
Lernziel	Topology is focused on the art and science of landscape surface manipulations using different materiality and textures. The approach of the studio is based on the use of 3D point cloud models as a design tool. The method has been developed at the Landscape Modelling and Visualizing Laboratory (LVML) over the past decade. Students will learn how to develop a large-scale landscape project by using advanced 3D modeling and visualizing techniques. From the site visit up to the final presentation, a series of workshops will accompany the regular desk critiques and design reviews, enabling each student to develop their landscape design skill using digital and physical modeling. Analogue design tools will be combined with digital design tools in the early design development phase. For that purpose, a series of seminars will be taught that include sandbox sketching, sand modeling and CNC prototyping, iterative 3D point cloud modeling and visualization techniques. Students will be encouraged to develop their own design strategies and adapt the topological method to their projects. Readers, manuals, historic documents and lectures will be made available to students. A studio reader combined with some lectures by expert will support students in the development of their landscape projects.						
Inhalt	<p>A New Urban Beach and Promenade on the Sihl in Zurich Kreis 5: The last stretch of the Sihl runs between the Main Station and the Kornhaus tower in Zürich where it finally merges with the River Limmat. It flows in the shade of the Sihlquai on its dark side, and is contained by the sunnier Letten island on the other. Its muddy waters cross a wild area with steep and hard to access banks and a beach that remains relatively unvisited apart from the occasional kayakers. The goal of this studio is to create a new landscape topology that will enable a stronger and more active relationship and access to the Sihl for the local population. The stretch of river located at the center of town offers great landscape potential for promenade, leisure and bathing. It has been ignored over the past years for various reasons, least of which being the threat of flooding...</p> <p>Students will be asked to develop a visionary landscape project meant to strengthen the immanent relationship that exists between the city, its inhabitants and the dark side of the Sihl. More information is available on our website: <a href="http://girot.arch.ethz.ch">girot.arch.ethz.ch</a></p>						
Skript	Instruction booklets on the task, the site and various workshops will be provided at the introduction. More information on the studio is available at <a href="http://girot.arch.ethz.ch">girot.arch.ethz.ch</a>						
Literatur	A reader will be provided at the introduction. Furthermore, a semester apparat is available to the students at the ILA Library.						

[http://www.vvz.ethz.ch/Vorlesungsverzeichnis/sucheLehrangebot.view?lang=de&search=on&semkez=2019S&studiengangTyp=&deptId=&studiengangAbschnittId=&lernheitstitel=&lernheitscode=052-1128-19L&famname=&rufname=&wahlinfo=&lehrrsprache=&periodizitaet=&katalogdaten=&\\_strukturAus=on&search=Suchen](http://www.vvz.ethz.ch/Vorlesungsverzeichnis/sucheLehrangebot.view?lang=de&search=on&semkez=2019S&studiengangTyp=&deptId=&studiengangAbschnittId=&lernheitstitel=&lernheitscode=052-1128-19L&famname=&rufname=&wahlinfo=&lehrrsprache=&periodizitaet=&katalogdaten=&_strukturAus=on&search=Suchen)



## Vorlesungsverzeichnis

### 051-0162-00L Landscape Architecture II

<b>Semester</b>	Frühjahrssemester 2019
<b>Dozierende</b>	<b>C. Giro</b>
<b>Periodizität</b>	jährlich wiederkehrende Veranstaltung
<b>Lehrsprache</b>	Englisch
<b>Kommentar</b>	Only for Architecture BSc, Programme Regulations 2011.

Katalogdaten	Leistungskontrolle	Lernmaterialien	Lehrveranstaltungen	Gruppen	Einschränkungen
Angeboten in	<a href="#">► Übersicht</a>				

<b>Kurzbeschreibung</b>	Gegenstand der Vorlesungsreihe ist die Einführung in die Arbeitsfelder zeitgenössischer Landschaftsarchitektur. Anhand der Aspekte Ort, Boden, Wasser und Vegetation wird eine Perspektive auf zukünftige Aufgaben der Landschaftsarchitektur eröffnet.
<b>Lernziel</b>	Überblick über gegenwärtige und kommende Aufgabenfelder der Landschaftsarchitektur. Kritische Reflexion zeitgenössischer Entwurfspraxis und Vermittlung von Ansätzen eines neuen Zugangs zur Gestaltung von Landschaft.
<b>Inhalt</b>	Die Vorlesungsreihe "Theorie und Entwurf der zeitgenössischen Landschaftsarchitektur" (Landschaftsarchitektur II) schliesst an die Vorlesung "Geschichte und Theorie der Gartenkunst und Landschaftsarchitektur" (Landschaftsarchitektur I) an. Sie konzentriert sich nicht nur auf stilistische Fragen der Landschaftsarchitektur, sondern auch auf anstehende Aufgaben wie Revitalisierung von Landschaften, Nachhaltigkeit etc. Vorgestellt werden Gestaltungsansätze, die sich kritisch mit überkommenen Naturbildern auseinandersetzen. Die Themenfelder Ort, Boden, Wasser und Vegetation bieten dabei praktisches Anschauungsmaterial für den landschaftsarchitektonischen Entwurf.
<b>Skript</b>	Kein Skript. Handout und prüfungsrelevante Literatur werden zur Verfügung gestellt.
<b>Literatur</b>	Für die Prüfung wird eine Literaturliste zusammengestellt.
<b>Voraussetzungen / Besonderes</b>	Allgemeine Hinweise zur Prüfung:  Bachelorstudierende: Als Grundlage für die Prüfungsvorbereitung dienen das in der



## Modulbeschreibung - Sozialwissenschaften 2

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Nummer	G2032
Leitung	Christina Schumacher, christina.schumacher@fhnw.ch
ECTS	0.0
Unterrichtssprache	Deutsch
Lernziele/Kompetenzen	Im Grundstudium vermittelt der Soziologieunterricht das sozialwissenschaftliche Handwerkszeug für eine nutzungsfreundliche und sozial nachhaltige Planungs- und Bautätigkeit. Theorien und Debatten an der Schnittstelle von Planung und Sozialwissenschaften werden anhand fallspezifischer Fragestellungen zugeschnitten auf das Feld der Architektur eingeführt. Neben der im Zentrum stehenden Methoden- und Fachkompetenz werden Sozial- und Selbstkompetenzen durch moderiertes selbständiges Arbeiten und Präsentieren alleine und in der Gruppe geschult.
Lerninhalte	Der Kurs G203.2 thematisiert kollektiv genutzte Räume im suburbanen Kontext mit jeweils wechselndem Fokus auf eine aktuelle Fragestellung.
Erforderliche Vorkenntnisse	G103.2
Bibliographie/Literatur	Im Laufe des Kurses wird eine auf die Fragestellung abgestimmte Auswahl an Texten abgegeben.
Lehr- und Lernmethoden	Vorlesungsinputs zu Theorien, Methoden und Debatten, Diskussion in Gruppen und im Plenum, Schreibtechniken, Erarbeitung eigener empirischer Fallstudien und deren mündliche und schriftliche Präsentation und Evaluation.

<https://www.fhnw.ch/de/studium/module/9078820>

# MODULBESCHREIBUNG

## Entwurf 4 (2018)

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ECTS-Punkte: 6

Lernziele:

- Fähigkeit zur effizienten und selbständigen Bearbeitung eines eigenständigen landschaftsarchitektonischen Entwurfs
- Fähigkeit, für einen spezifischen Ort und eine spezifische Aufgabe ein konsistentes Konzept zu entwickeln und gestalterisch umzusetzen
- Entwickeln einer ganzheitlichen Entwurfshaltung im Hinblick auf Ästhetik, Funktionalität, Ökologie und Angemessenheit der Lösung
- Gestalten einzelner landschaftsarchitektonischer Elemente (Material- und Pflanzenverwendung, Formgebung)

## Kurse in diesem Modul

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*Wohnen,  
Dienstleistungen:*

Entwurfsprojekt mit typischen räumlichen, funktionalen und gestalterischen Problemstellungen bis Stufe Vorprojekt inklusive Leitdetails.  
Entwurfsschwerpunkt: Wohnumfeld. Gegenstand ist in der Regel die Umgebungsgestaltung einer Wohnsiedlung mit Fragen zur nachhaltigen Entwicklung, zur ganzheitlichen Gestaltung unter besonderer Berücksichtigung des Nutzerverhaltens. Gestalterische Fragen wie Ortsbezug, Raumbildung, Formgebung, Materialisierung und Bepflanzung stehen im Zentrum. Weitere Themen sind der gestalterisch-konstruktive Umgang mit baulichen Elementen wie Treppen, Mauern, Becken und Pergolen sowie die langfristige Entwicklung, Pflege und Unterhalt.  
Plandarstellung und Modell: Analysepläne, Konzeptdiagramme, Vorprojektpläne mit Schnitten und perspektivischen Visualisierungen, teilweise Leitdetail- und Pflanzpläne, Arbeitsmodell

Übung mit 4 Lektionen pro Woche

Projekt mit 2 Lektionen pro Woche

Disclaimer

Diese Beschreibung ist rechtlich nicht verbindlich! Weitere Informationen finden Sie in der [detaillierten Modulbeschreibung](#).

## Entwurf 6 (2018)

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*ECTS-Punkte:* 6

*Lernziele:* Fähigkeit zur selbständigen Bearbeitung eines anspruchsvollen landschaftsarchitektonischen Entwurfs. Bilden der eigenen Sicht und Urteilsfähigkeit.

### Kurse in diesem Modul

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*Spezialthemen 2:* Entwurfsprojekt mit komplexen räumlichen und funktionalen Problemstellungen bis Stufe Vorprojekt oder Projekt; Angestrebt wird eine interdisziplinäre Zusammenarbeit mit Partnerdisziplinen wie z.B. Architektur, Stadtleben, Verkehrsplanung, Soziologie, Kunst, .....

Uebung mit 3 Lektionen pro Woche

Projekt mit 3 Lektionen pro Woche

#### Disclaimer

Diese Beschreibung ist rechtlich nicht verbindlich! Weitere Informationen finden Sie in der [detaillierten Modulbeschreibung](#).

## 8.6.6 Landscape Architecture - Rapperswil

28/04/2020

Moduleditor



# MODULBESCHREIBUNG

## Landschaftsentwicklung 1

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*ECTS-Punkte:* 6

*Lernziele:* Erlernen und Anwenden der Grundkenntnisse zur Analyse, Bewertung, Interpretation und Entwicklung/Steuerung der Natur-, Kultur- und Erholungslandschaft

### Kurse in diesem Modul

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*Projekt  
Landschaftsanalyse und  
-interpretation:*

- Analyse und Bewertung der Ausgangslage (Landschaftsentwicklung, Analyse und Bewertung der Kultur-, Natur- und Erholungslandschaft Konflikt- und Problemanalyse)
- Entwurf von Leitbild, Zielen und Konzept zu einer nachhaltigen Landschaftsentwicklung sowie geeigneter Lösungsansätze

Vorlesung mit 3 Lektionen pro Woche

Übung mit 3 Lektionen pro Woche

Disclaimer

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[https://studien.hsr.ch/allModules/public/29949\\_M\\_Le1.html](https://studien.hsr.ch/allModules/public/29949_M_Le1.html)

1/1

[https://studien.hsr.ch/allModules/public/29949\\_M\\_Le1.html](https://studien.hsr.ch/allModules/public/29949_M_Le1.html)

## Städtebau 2 / Freiraumplanung 1

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*ECTS-Punkte:*

2

*Lernziele:*

Grundkenntnisse des Städtebaus in seinen räumlichen und funktionalen Zusammenhängen.  
Auseinandersetzung mit Stadtmorphologie und Stadtgestalt  
Umgang mit den vielfältigen die Stadt konstituierenden Ebenen bezüglich Bauwerken, Infrastrukturen und Freiräumen.  
Kennenlernen des Stadtgefüges und seiner wesentlichen Elemente und Nutzungen Fähigkeit, die Stadt in ihrer interdisziplinären Vielfalt zu analysieren und zu verstehen, sowie auf erkannte Defizite komplexe und zielführende Antworten vorzuschlagen.  
Kenntnisse über aktuelle Themen wie Verdichtung, Nachhaltigkeit, Lebensraumqualität.  
Kennenlernen von unterschiedlichen Prägungen, Strukturierungen und Ausgestaltungen der Stadt.  
Verstehen von Transformationsprozessen und -möglichkeiten, einflussnehmenden Instrumenten und Akteuren.

## 8.6.8 Landscape Architecture – Geneva

### Unité de cours : AP\_331 - Sociologie de l'espace public

#### Objectifs d'apprentissage

À la fin du cours, l'étudiant-e doit être capable de:

- Identifier les caractéristiques sociales et historiques d'un territoire donné
- Identifier les pratiques et usages à l'échelle d'un territoire, d'un quartier, d'une place
- Analyser la diversité des demandes dans la démarche de projets
- Connaître différentes méthodes d'enquête et en utiliser une ou l'autre
- Connaître différents démarches participatives et s'en emparer

#### Contenus

- Espace; territoire; territorialité; représentations sociales; perception spatiale; identification territoriale; aspirations territoriales; système d'attitudes; sociologie urbaine; réseaux; système d'acteurs; méthodes et techniques de recherche et d'analyse socio-spatiale.

#### Répartition horaire

Enseignement :  heures (32 périodes de 45 minutes)

Travail autonome :  heures

Total :  heures de travail pour ce cours

#### Modalités d'enseignement

- Ex cathedra (amphi)     Frontal participatif     Atelier / Laboratoire / Séminaire

#### Modalités d'évaluation

- Contrôle continu (présentation orale et/ou travaux écrits)

Les critères de l'évaluation sont transmis au début du cours.

[https://www.hesge.ch/hepia/sites/default/files//bachelor/documents/ce\\_ap\\_modules-2e\\_2019-2020.pdf](https://www.hesge.ch/hepia/sites/default/files//bachelor/documents/ce_ap_modules-2e_2019-2020.pdf)

## 8.6.9 Landscape Architecture – ETH Zurich

### <sup>3</sup> Vertiefungsfächer

Die Vertiefungsfächer sind frei wählbar und bieten den Studierenden die Möglichkeit, in bestimmten Bereichen der Landschaftsarchitektur vertiefte Kenntnisse zu erwerben. Die Einzelheiten für die Leistungskontrollen sind in Art. 27 geregelt.

### <sup>4</sup> Entwurfsstudios

- a. Das **Grundlagenstudio I** ist modular aufgebaut und verknüpft die Themen einzelner Grundlagenfächer mit dem Entwurfsunterricht. Das Grundlagenstudio I vermittelt auf verschiedenen Massstabsebenen grundlegende theoretische, methodische und technische Kenntnisse in der Analyse, im Entwerfen und Konstruieren. Es schliesst mit einem Synthesemodul ab. Die Einzelheiten für die Leistungskontrolle sind in Art. 28 geregelt.
- b. Im **Grundlagenstudio II** werden Entwurfsaufgaben im Kontext der zeitgenössischen Landschaft bearbeitet. Die Berücksichtigung bestehender baulicher und landschaftlicher Strukturen steht dabei ebenso im Fokus wie gesellschaftliche, gesundheitspolitische und umweltstrategische Themen. Die Einzelheiten für die Belegung dieser Lerneinheit und für die Leistungskontrolle sind in Art. 28 geregelt.

<https://rechtssammlung.sp.ethz.ch/Dokumente/324.1.0100.30.pdf>

# MODULBESCHREIBUNG

## Städtebau 7 / Freiraumplanung 6 - L

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*ECTS-Punkte:* 4

*Lernziele:* Sie lernen städtebauliche Veränderungsprozesse im urbanen Raum im Zusammenhang mit ihren kulturellen, ökonomischen und gesellschaftlichen Hintergründen kennen. Sie üben in interdisziplinären die planerische Auseinandersetzung mit städtebaulichen Veränderungsprozessen ein.

### Kurse in diesem Modul

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*Städtebauliche  
Konzeptentwicklung:*

- Input zur Methodik der städtebaulichen Konzeptentwicklung und Leitbildentwicklung
- kontinuierliche Begleitung der Übung(en) und Zwischenpräsentationen durch Dozierende

Übung mit 2 Lektionen pro Woche

*Stadtentwicklung:*

- Stadt und Agglomeration als Resultat verschiedener Urbanisationsprozesse
- Urbane Strukturen und Infrastrukturen in der Stadtlandschaft des 21. Jh.: Wohnen, Arbeiten, Freizeit, Konsum, Gewerbe
- Stadtentwicklungsprojekte mit unterschiedlichen Themenschwerpunkten und in unterschiedlichen Kontexten zur Verdeutlichung aktueller Entwicklungstendenzen (auch externe Gastreferenten)

Vorlesung mit 2 Lektionen pro Woche

Disclaimer

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## 8.6.11 Urbanism – Geneva

### Atelier Interdisciplinarité

(translation : *Interdisciplinarity Workshop*)

Code	Durée par semaine	Horaire	Nb crédits*
14E200 AT	Ateliers	Automne, Ma, Me, Je, Ve, 9h15-12h et 13h15-17h, Maraîchers Aquarium 001 Cours bloc - semaine 1	2

#### Enseignant(s)

**PLAGNAT CANTOREGGI Pauline**, chargée de cours, **coordonnées professionnelles**

**BARUFFA Chloé**, assistante, **coordonnées professionnelles**

**SCHLAEPFER Martin**, chargé de cours, **coordonnées professionnelles**

#### Objectif

1. Développer une sensibilité aux aspects épistémologiques, pratiques et méthodologiques de l'approche interdisciplinaire qu'ils auront à mettre en oeuvre au fil de leur curriculum au sein du MUSE.
2. Initier un dialogue interdisciplinaire dans le cadre d'une approche par résolution de problème et une démarche de projet
3. Comprendre les dynamiques, contraintes et blocages écologiques et institutionnels (relations systémiques, mode de gouvernance, valeurs et éthique) et développer des compétences transversales
4. Développer une approche critique des difficultés conceptuelles et techniques de mise en oeuvre de l'interdisciplinarité, dans le cadre du programme

#### Descriptif

Prendre en charge dans sa globalité un problème qui comporte des dimensions naturelles et des dimensions sociales est une pratique répandue dans les sciences de l'environnement et, à plus forte raison, dans une perspective d'action de développement durable. Pour traiter de questions complexes qui réunissent des composantes différentes, telles que le développement urbain, la gestion des ressources naturelles ou la qualité de vie, les recherches disciplinaires et les pratiques professionnelles sectorielles sont de plus en plus mises en cause, sinon hybridées, au profit de démarches multi', inter', voire transdisciplinaires. Cet atelier vise à développer chez les étudiant(e)s une sensibilité aux aspects épistémologiques, pratiques et méthodologiques de l'approche interdisciplinaire qu'ils auront à mettre en oeuvre au fil de leur curriculum au sein du MUSE.

[https://wadme.unige.ch:3349/pls/opprg/w\\_det\\_cours.debut?p\\_code\\_cours=14E200&p\\_plan\\_is=0&p\\_langue=1&p\\_frame=N&p\\_mode=PGC&p\\_annee=2019&p\\_suffixe=&p\\_grtri=](https://wadme.unige.ch:3349/pls/opprg/w_det_cours.debut?p_code_cours=14E200&p_plan_is=0&p_langue=1&p_frame=N&p_mode=PGC&p_annee=2019&p_suffixe=&p_grtri=)



**Année académique 2019-2020****FACULTÉ DES SCIENCES****FND Environnement et santé***(translation : Environment and Health [FND])*

Code	Durée par semaine	Horaire	Nb crédits*
14E109 CR	Cours	Automne, Sem. 9 à 14: Lu 10h15-13h Sem. 9 à 13: Me 10h15-12h Uni Carl Vogt, CV001	3

**Enseignant(s)**

**CANTOREGGI Nicola Luca**, chargé de cours/chargé de mission/collaborateur scientifique i et ii, **coordonnées professionnelles**

**SIMOS Jean**, chargé de cours/chargé de mission, **coordonnées professionnelles**

**Objectif**

- maîtriser les principes des relations entre environnement et santé en utilisant l'approche par les déterminants de la santé ;
- comprendre les bases de l'épidémiologie environnementale et de la signification des résultats de la recherche relative ;
- acquérir les connaissances fondamentales et le savoir-faire élémentaire propres à certaines thématiques indispensables au professionnel de l'environnement et de la santé ;
- s'initier à la démarche et aux techniques de l'évaluation quantitative du risque sanitaire ;
- prendre connaissance des données probantes sur les inégalités sociales de santé, les mécanismes qui leur donnent naissance et leurs conséquences sur les facteurs environnementaux ;
- disposant de ces outils, appréhender les dimensions socio-politiques des enjeux actuels d'environnement et santé et exercer son regard critique face aux différents arguments, affirmations et résultats fournis dans les débats qui s'y réfèrent.

**Descriptif**

Le cours constitue une introduction aux interrelations complexes entre environnement et santé. Pour délimiter cette interface, il adopte une définition relativement large proposée par l'OMS. Les risques sanitaires d'origine environnementale seront abordés et analysés de manière approfondie. Les éléments de base de l'épidémiologie environnementale et de l'évaluation quantitative du risque sanitaire seront exposés. Des applications plus spécifiques serviront à illustrer de manière pratique ces concepts.

L'intégration de l'interface environnement et santé dans les démarches pour un développement durable et l'amélioration de la qualité de vie urbaine à l'aide du programme Villes-Santé OMS seront également expliquées. Un éclairage particulier sera porté sur les questions d'inégalités (territoriales ; gradient social). L'approche par les déterminants de la santé sera privilégiée et des outils appropriés visant à procurer aux étudiants les connaissances fondamentales et le savoir-faire indispensables au professionnel de l'environnement et de la santé seront enseignés. Quelques monographies de problèmes-type (plomb et saturnisme, amiante et mésothéliome, bruit et qualité de vie, environnement intérieur, environnement urbain et le phénomène de gentrification, etc.), présentées par des intervenants externes spécialistes reconnus de la question, illustreront ces concepts et outils. Enfin, l'analyse de politiques publiques et plans d'action mis en œuvre à différents niveaux (international, national, régional, local) permettront d'appréhender les dimensions socio-politiques des enjeux actuels d'environnement et santé.

**Bibliographie**

Dab W., Santé et environnement. Collection Que sais-je ? n° 3771, Paris, 2007

**Evaluation**

Travail écrit

[https://wadme.unige.ch:3349/pls/opprg/w\\_det\\_cours.debut?p\\_code\\_cours=14E109&p\\_plan\\_is=0&p\\_langue=1&p\\_frame=N&p\\_mode=PGC&p\\_annee=2019&p\\_suffixe=&p\\_grtri=](https://wadme.unige.ch:3349/pls/opprg/w_det_cours.debut?p_code_cours=14E109&p_plan_is=0&p_langue=1&p_frame=N&p_mode=PGC&p_annee=2019&p_suffixe=&p_grtri=)

## Card-index course

### Sustainable mobility: practices, planning and strategies

*Mobilité durable : pratiques, aménagements et stratégies*

**Responsible Faculty: Faculty of Geosciences and Environment (FGSE)**

Teacher(s): Patrick Rérat

Validity: 2018 ->

#### **Course Timetable (Weekly)**

Date	Location	Notice	Topics	Lecturer(s)
2019/2020 : Tuesday 08:30-12:00 (Weekly)	Géopolis/2224			
2019/2020 : Tuesday 14:15-18:00 (Weekly)	Géopolis/2137			

#### **Course+Practical work**

Spring semester

2 hours per week

28 hours per semester

Weekly

Teaching language(s): French

Public: Yes

Credits: 2.00, 3.00

#### **Objective**

Mobility management is at the core of urbanism and land-planning concerns. Mobility, shaped by the functioning of the economic system, by lifestyles and by spatial structures, is indeed increasingly intense and complex (in terms of distance traveled, origin/destination, trip-chaining, etc.). It raises many issues, in particular in urban areas, because of its environmental impacts (atmospheric and noise pollution, green house gas emissions), but also because of congestion, infrastructure financing and impacts on the quality of life. On this basis, numerous local authorities actively promote an urban mobility that is less based on individual motorized transportation and creates less negative externalities. This will be translated by the development of public transportation but also by an increasing attention paid to active) mobilities.

This course is focused on these new trends in the case of cycling (practices, cycling urbanisme, etc.) and is based on theoretical discussions, case studies and the simulation of an applied research



## Vorlesungsverzeichnis

### 101-0488-01L Fuss- und Veloverkehr

<b>Semester</b>	Frühjahrssemester 2020
<b>Dozierende</b>	U. Walter, E. Bosina, M. Meeder
<b>Periodizität</b>	jährlich wiederkehrende Veranstaltung
<b>Lehrsprache</b>	Deutsch

Katalogdaten	Leistungskontrolle	Lernmaterialien	Lehrveranstaltungen	Gruppen	Einschränkungen
Angeboten in	<a href="#">Übersicht</a>				

<b>Kurzbeschreibung</b>	Grundlagen der Fussgängerverkehrsplanung sowie der Planung von Anlagen des leichten Zweiradverkehrs, Transporttechnische Eigenschaften des Menschen, Entwurf von Fussgänger- und Radverkehrsnetzen, Anlagen des Fuss- und Radverkehrs, Mikrosimulation des Fussgängerverkehrs, Beurteilung von Leistungsfähigkeit und Verkehrsqualität
<b>Lernziel</b>	Erwerb von Grundkenntnissen im Bereich der Fussgänger- und Radverkehrsplanung, Kenntnis und Verständnis der transporttechnischen Eigenschaften des Menschen und der daraus folgenden Konsequenzen für den Entwurf und die Planung entsprechender Verkehrsanlagen, Fähigkeit zur Beurteilung der Verkehrsqualität und Leistungsfähigkeit, Grundkenntnisse über die Mikrosimulation von Fussgängerströmen als zeitgemässes Planungs- und Analyseinstrument

<b>Inhalt</b>	<ol style="list-style-type: none"> <li>1) Einführung Fuss- und Veloverkehr</li> <li>2) Eigenschaften: Rad / Radfahrer / Zielgruppen</li> <li>3) Aufbau von Veloverkehrsnetzen</li> <li>4) Übung: Planung eines Radverkehrsnetzes.</li> <li>5) Anlagenentwurf Veloverkehr</li> <li>6) Veloparkierung</li> <li>7) Fussgängereigenschaften, Geschwindigkeit</li> <li>8) Fussverkehr: Leistungsfähigkeit und Qualität</li> <li>9) Fussverkehr Anlagengestaltung</li> <li>10) Fussgängeranlagen des öffentlichen Verkehrs</li> <li>11) Fussverkehr: Hindernisfreie Verkehrsräume</li> <li>12) Zählungen Fuss- und Veloverkehr</li> <li>13) Simulation des Fussverkehrs</li> <li>14) Technologie der Mikrosimulation des Fussverkehrs</li> </ol>
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ENV-468

**Environnements de travail, risques professionnels**

Vernez David

Cursus	Sem.	Type
Sciences et ingénierie de l'environnement	MA1, MA3	Opt.

Langue	français
Crédits	3
Session	Hiver
Semestre	Automne
Examen	Oral
Charge	90h
Semaines	14
<b>Heures</b>	<b>3 hebdo</b>
Cours	2 hebdo
Exercices	1 hebdo
<b>Nombre de places</b>	

**Résumé**

La population adulte passe l'essentiel de son temps actif dans le milieu professionnel. La qualité et la sécurité de cet environnement est donc une composante essentielle de la santé publique. Ce cours passe en revue les polluants professionnels et les risques sanitaires qui y sont associés.

**Contenu**

Contexte de l'environnement professionnel, hygiène du travail et santé publique.

Identification, évaluation (incl. incorporation et dose-réponse) et mesures de prévention des polluants professionnels

- polluants chimiques: gaz, vapeurs, liquides (solvants, pesticides...)
  - polluants physico-chimiques. aérosols (poussières, nanoparticules), fibres (amiante...)
  - nuisances physiques: bruit, rayonnements non-ionisants (CEM, UVs), stress thermique
  - agents biologiques en milieu professionnel.
- Accidents professionnels.

**Mots-clés**

évaluation du risque, environnement de travail, hygiène du travail, sciences de l'exposition

**Compétences requises****Cours prérequis indicatifs**

Chimie environnementale, Analyse des polluants dans l'environnement, Analyse et management des risques industriels, Écotoxicologie

**Concepts importants à maîtriser**

propriétés physiques et chimiques des polluants

**Acquis de formation**

A la fin de ce cours l'étudiant doit être capable de:

- Situer les enjeux de santé au travail au sein de la santé publique
- Déceler les risques associés aux polluants présents dans l'environnement de travail
- Caractériser les différents types de polluants et leurs propriétés
- Utiliser des outils et méthodes simples d'évaluation des risques
- Choisir ou sélectionner les compétences ou méthodes appropriées à la gestion d'un risque particulier

**Compétences transversales**

ENSAM

École nationale  
supérieure d'architecture  
Montpellier | La Réunion

rentrée universitaire  
**24 SEPTEMBRE 2018**

Mastère Spécialisé®

# ARCHITECTURE, TERRITOIRES ET SANTÉ

## ENVIRONNEMENTS ET QUALITÉ DE VIE SANTÉ



### CONTEXTE ET OBJECTIFS

De nouvelles pathologies ou troubles de santé dont certains sont liés aux organisations de l'espace architectural, urbain et environnemental, apparaissent et constituent enjeux et priorités en termes de santé publique. Les lieux de vie, de travail sont des espaces considérés comme l'un des facteurs déterminants pour la santé.

De nouveaux concepts sur l'aménagement, le cadre et les environnements de vie émergent et sont pris en compte dans les politiques publiques.

Ce changement de paradigme repositionne le rôle de l'architecte-urbaniste, lui conférant en parallèle un rôle d'acteur de santé.

Consciente de ces besoins, l'ENSAM propose une formation innovante, pluridisciplinaire et transversale, incluant le regard santé.

**Les objectifs de cette formation diplômante** sont de :

→ proposer aux architectes, professionnels de l'aménagement urbain et de la santé, de la santé publique et environnementale des méthodes et des outils permettant la production d'un cadre de vie de qualité ;

→ intégrer les études d'impact de santé, les diagnostics locaux de santé, etc.

→ favoriser les prises de décision par le partage de connaissances entre les différents professionnels de la santé, de l'architecture, de l'urbanisme...

Le Mastère Spécialisé® répond en cela aux enjeux des politiques publiques qui sont d'intégrer la santé dans les documents d'urbanisme et de planification des aménageurs et des collectivités.

Il permet de développer compétences et expertise dans la conception et la mise en œuvre de moyens de prévention des risques en santé environnement. Il a également pour ambition une meilleure gestion des impacts sanitaires et sociaux liés aux facteurs environnementaux, dans les applications en architecture, en urbanisme et en aménagement du territoire

## COMPETENCES ET DEBOUCHES

Pour l'ensemble de ces professionnels, le DPEA « Architecture et Santé » permet d'étendre leur domaine de compétences en terme de :

- Mise en œuvre des projets architecturaux liés à la santé : management, coordination
- Production d'opérations de construction : pilotage, direction et suivi
- Conception architecturale tant dans son volet « programmation » que « composition »

Les diplômés sont destinés à exercer leurs compétences dans les domaines de la production du cadre bâti, notamment dans le secteur de la santé, et plus particulièrement au sein des organismes suivants :

- Collectivités territoriales et Collectivités locales
- Opérateurs privés de la construction (promoteurs, groupes immobiliers)
- Etablissements de santé ou médico-sociaux
- Bureaux d'études techniques de la construction spécialisés en santé

Ce diplôme prépare également aux concours de l'administration territoriale (ingénieur, attaché) Compte-tenu de l'émergence de cette problématique et de ses perspectives, ce diplôme ouvre vers le domaine de la recherche et notamment en doctorat, que ce soit en architecture, en santé publique ou en psychologie environnementale.

## PROGRAMME

Le programme est composé de cours et d'ateliers répartis en modules thématiques tous traités de manière interdisciplinaire, avec des regards croisés entre praticiens, techniciens et chercheurs autour des questions de santé.

Sont également proposés des visites de site, des mises en situation, ainsi qu'un voyage d'études européen permettant l'observation de situations et de solutions originales adoptées autour de cette problématique.

→ **8 modules thématiques**, articulés autour de questions spécifiques

→ **Ateliers de projet intensifs**, en équipe pluridisciplinaire, dont l'objectif est la mise à l'épreuve de la conception des savoirs acquis, la recherche architectonique et technique, toujours en privilégiant une approche globale, intégrée et économique

→ **Mise en Situation Professionnelle** de deux mois (mission in situ ou stage)

→ **Un mémoire de fin d'études**, réalisé en lien avec le terrain de stage, sous la direction d'un directeur de mémoire spécialisé dans la thématique choisie.

## DEROULEMENT DE LA FORMATION

→ **Durée du cursus** : 215 heures de présentiel sur deux semestres universitaires, de septembre 2017 à septembre 2018 à raison de trois jours par mois, du mercredi au vendredi.

→ **Soutenance du mémoire de fin d'études** : 30 septembre 2018.

→ **Lieu de formation** : Montpellier ENSAM pour les unités d'enseignement théoriques. Les visites de site, certains ateliers de projet et le voyage d'études se déroulent à l'extérieur et selon un emploi du temps établi à chaque rentrée universitaire.

→ **Pré-rentrée le 3 OCTOBRE 2017 à 14h**

**ENSAM**

École nationale  
supérieure d'architecture  
Montpellier | La Réunion

Direction des études et de la pédagogie  
179 rue de l'Espérance  
34093 Montpellier Cedex 05  
www.montpellier.archi.fr

## ATOUTS

### FORMATION INTERDISCIPLINAIRE

#### DIVERSIFICATION DES MODALITES PEDAGOGIQUES

Alternance de séminaires thématiques, ateliers de projets intensifs, conférences, visites et voyages d'études.

#### APPROCHE TRANSVERSALE DE L'ARCHITECTURE INCLUANT LA SANTE

A toutes les échelles : de la ville aux matériaux, en passant par l'habitat, avec des focus sur les programmes de construction spécifiques à la santé.

#### IMMERSION PROFESSIONNELLE DANS LE MILIEU DE LA SANTE

La Mise en Situation Professionnelle se fait au sein d'organismes acteurs du cadre de vie et de la santé.

#### METISSAGE DES CANDIDATS

Publics de différents horizons professionnels et intergénérationnels.

## CANDIDATURE

Ce DPEA « Architecture et santé » s'adresse à tous les acteurs du bâtiment et de la santé :

- Architectes DPLGou DEA ou d'un diplôme équivalent (bac+5)
- Ingénieurs hospitaliers
- Maîtres d'ouvrages publics et privés, assistants à maîtres d'ouvrage
- Programmistes, bureaux d'études techniques et de conseil
- Commissaires-enquêteurs
- Urbanistes, géographes
- Economistes de la construction, entreprises et artisans, industriels
- Cadres et directeurs des établissements de santé ou des établissements spécialisés
- Professionnels de santé (médecins, infirmières...) de santé publique, de santé environnement
- Professionnels souhaitant se reconverter ou obtenir une spécialité en Architecture et Santé, mais ayant préalablement mené une activité dans le milieu de l'architecture et/ou de l'urbanisme ou de la santé

## PROCEDURE D'ADMISSION

→ Dossier de candidature à retourner au plus tard

le **31 mai 2017** à la Direction des Etudes et de la Pédagogie.

→ Entretiens pour les candidats recevables : le **15 juin 2017** (résultats communiqués le 30 juin 2017)

→ Nombre de places : **maximum 20**

→ Pour les candidats de pays non francophones, une très bonne connaissance du français est indispensable (certification du niveau C1 à fournir)

## DROITS D'INSCRIPTION (A TITRE INDICATIF)

→ **2 800€** en autofinancement du postulant ou pour les demandeurs d'emploi en réinsertion

→ **4300€** concernant le régime de la formation continue

→ **Possibilité de financement de la formation**

→ **Possibilité de s'inscrire à 1 ou plusieurs modules thématiques**

Coût par module : **800 €**

## CONTACT ET RENSEIGNEMENTS

### Responsables pédagogiques

Mathias RCLLOT, Docteur en Architecture, Architecte et Maître-Assistant Associé à l'ENSAM

Catherine CECCHI, Vice-présidente de la société française de Santé Environnement et Présidente de SRSP Occitanie

### Renseignements

dpea-archisante@montpellier.archi.fr

Page web : [http://www.montpellier.archi.fr/formations/etudier\\_a\\_l\\_ensam/autres\\_diplomes/dpea\\_architecture\\_et\\_sante](http://www.montpellier.archi.fr/formations/etudier_a_l_ensam/autres_diplomes/dpea_architecture_et_sante)

### Documents téléchargeables :

- o Dossier de candidature
- o Programme pédagogique



UNIVERSITY OF CAMBRIDGE

DEPARTMENT OF ARCHITECTURE

YEAR ONE

ENVIRONMENTAL DESIGN

Lecture 9: Health and wellbeing in architecture

*Prof Koen Steemers*

Defining health:

The World Health Organisation's definition of health:

*"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."*

This definition entered into force on 7 April 1948 and has not been amended since. Coincidentally, 1948 is also the year that the National Health Service (NHS) was established in the UK. It was the first time anywhere in the world that completely free healthcare was made available.

The Commission for Architecture and the Built Environment (CABE) (an executive public body of the UK government, now part of the Design Council) linked the built environment with health outcomes in its 2009 report 'Sustainable places for health and Well-being'. Its approach sees:

*"health and wellbeing as interdependent; it holds 'prevention' as important as 'cure', and looks for long-term solutions rather than more immediately attainable treatments".*

That architecture impinges on our health is not so surprising given that we spend:

- 90% of our lives in buildings
- 65% of our time in homes (making our domestic environment particularly significant)
- 30% of our time asleep

A recent All Party Parliamentary Group (APPG) for Healthy Homes and Buildings, (October 2018) concluded that:

*"In short, living, working or occupying unhealthy homes and buildings directly and negatively impacts human health – causing serious health effects, aggravating existing conditions and in the extreme, leading to unnecessary deaths".*



Rather than focusing on ill health and the negatives, 'positive psychologists' like Prof Felicia Huppert (past director of the Cambridge Wellbeing Institute) defined the opposites – ie features of positive wellbeing – in order to quantify 'flourishing' in different European nations.

Flourishing nations are characterised by:

- relative wealth
- low income inequality
- high employment
- good healthcare system
- high welfare expenditure
- good governance
- high social trust

People who are most likely to be flourishing are socially connected, have high social trust and value creativity, new ideas, loyalty, helping other, and enjoying life.

Conversely, people who are least likely to be flourishing are those who value money, status, security and traditional religious values.

Five Ways to Wellbeing:

In order to distil key factors that influence positive wellbeing, the government commissioned a major Foresight report, which identified the following Five Ways to Wellbeing:

1. Connect
2. Keep Active
3. Take Notice
4. Keep Learning
5. Give

The question is: how do the Five Ways to Wellbeing relate to architecture and neighbourhood design?

This question - about the links between architecture and wellbeing - is explored with respect to a case study example in this lecture.



## Case Study: Accordia housing, Cambridge, 2008

The Accordia development is the first RIBA Stirling Prize winning housing project (the only other Stirling Prize for housing was awarded in 2019 to Goldsmiths Street, Norwich). Accordia is located off Brooklands Avenue, on a brownfield site, adopts high density and sustainable design features, and is considered as representing a “paradigm shift in British housing”. It was designed and masterplanned by FCB Studios, in collaboration with Marc Creanor Lavington and Alison Brookes Architects.

### Design opportunities illustrated by Accordia:

1. Connect: pedestrian-oriented to increase social interactions; connections to diverse green and social urban space; interior space to prepare food together, find quiet space, views to nature, etc.
2. Keep active: accessible, dense, mixed use and walkable neighbourhoods; stair use, attractive circulation space; three storey homes v bungalows; separate key spaces to encourage movement.
3. Take notice: create opportunities for mindfulness; use of art, planting, landscape, seating, more open space v less private space.
4. Keep learning: uncluttered, safe, light, comfortable, quiet; resilient and adaptable for art, music, reading, study, etc.
5. Give: altruism increases when stressors are reduced due diversity, proximity, accessibility of green/urban space.

The ‘Five Ways’ remind us design can create opportunities for healthy behaviours. These can take the form of moments of delight or adaptable settings that create positive opportunities. An architecture that has few such opportunities leaves our lives impoverished.

### Bibliography:

*Book:* Baker & Steemers (2019), *Healthy Homes*, RIBA (see Chapter 2).  
*Web:* *Healthy Homes & Buildings* (2018), <https://healthyhomesbuildings.org.uk>  
*Academic papers:* Anderson (2015), ‘Living in a communal garden’, *Frontiers in Public Health*. and: Anderson, Rugerri, Steemers, Huppert (2016), ‘Lively Social Space, Well-Being Activity, and Urban Design’, *Environment and Behavior*.

## 8.7 Course content

### 8.7.1 Landscape architecture – Rapperswil

#### Inhalt

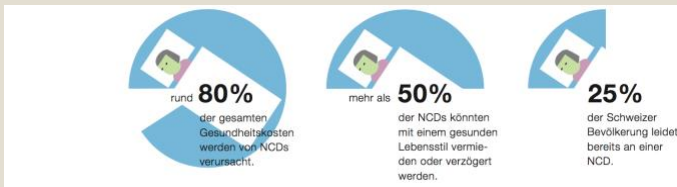
- Gesundheit was ist das?
- Einflussfaktoren auf Gesundheit
- Öffentlicher Raum – eine Annäherung
- Gesundheitliche Herausforderungen
- Potenziale und Wirkungsfelder Gemeinde
- Wie kann ein Raum gesundheitsfördernd gestaltet werden?
- Good Practice
- Fazit
- Fragen und Diskussion

#### Einflussfaktoren Gesundheit WHO

Gesundheit entsteht dort, wo wir spielen, lernen, arbeiten und lieben



#### Zahlen, Fakten und Argumente: Nicht übertragbare Krankheiten



Sundebest für Gesundheit BAG und Schweizerische Konferenz der kantonalen Gesundheitsdirektorinnen und -direktoren (ODK) (2016): Nationale Strategie zur Prävention nichtübertragbarer Krankheiten 2017-2024 (NCD-Strategie, Kurzfassung).

#### Zahlen, Fakten und Argumente

##### Bewegung Schweizerbevölkerung

1. Rund 60% der Schweizer Bevölkerung bewegen sich zu wenig oder gar nicht!
2. Direkte ökonomische Konsequenzen
  - ⇒ 2.1 Millionen CHF für vorzeitige Todesfälle (Erwerbsausfall)
  - ⇒ 2.4 Milliarden CHF direkte Krankheitskosten

#### Basisempfehlung für Erwachsene

Mindestens 2½ Stunden Bewegung pro Woche in Form von Alltagsaktivitäten oder Sport mit mindestens mittlerer Intensität...  
...oder 1¼ Stunden Sport oder Bewegung mit hoher Intensität.

The circular icons show '2.5h MIT MITTLERER INTENSITÄT' and '1.25h MIT HOHER INTENSITÄT'.

#### Regelmässige Bewegung bewirkt bei Erwachsenen:

**Abnahme ↓:**

- Herz- Kreislauf- Erkrankungen
- Hirnschlag
- Bluthochdruck
- Diabetes Typ II
- Dickdarmkrebs
- Brustkrebs
- Depressionen

#### Bewegungsräume schaffen

- ★ **Neue Bewegungsräume schaffen**  
Plätze, Wege, Grün-, Frei- und Spielflächen erstellen
- ★ **Bestehende Räume aufwerten**  
Bestand analysieren, Schwachstellen beseitigen, neue Angebote in bestehenden Räumen schaffen (mehr Natur in der Wohnung, Sitzbänke, Brunnen, Aufenthaltsbereiche usw.)
- ★ **Räume besser verbinden**  
Analyse der Wege, Netzlücken schliessen, Schwachstellen beseitigen.
- ★ **Bestehende Infrastruktur uminterpretieren**  
Brachflächen (temporär) bespielen, Strassenfeste
- ★ **Bestehende Bewegungsräume besser nutzen**  
Öffnungszeiten anpassen: Schulköfe öffnen, Freibäder als Grünflächen 365 Tage nutzbar machen.

#### Best Practice Rapperswil-Jona

Spiel- und Pausenplatzkonzept Erlebnis Schulweg



«Erlebnis Schulweg»

Projektspekt in zwei Kindergärten des Quartiers Bohlweil in Rapperswil-Jona

Verfasst von: 11.07.2017

Autoren: Heidi Frey, Charlotte Rothmann

## 8.7.2 Rapperswil – Bewegungsfreundliche Siedlungsräume

### Stand beim Thema Bewegungsfreundliches Wohnumfeld

BASPO Schrift „012 Sportanlagen - Bewegungsräume in Gemeinden“  
interdisziplinäre Arbeitsgruppe irap, HSR Rapperswil / FHS St.Gallen

- (neue) Angebote für Sport und Bewegung (Körpererfahrung, Gesundheit, Erlebnis...)
- Veränderung des Organisationsgrades (weniger vereinsgebunden)
- Bewegungsräume im Wohnumfeld als Ergänzung zum anlagenbezogenen Sport
- Bewegungsräume erhöhen Attraktivität des Wohnstandortes
- vielfältige Gruppen ansprechen
- *"ein hochwertiges Versorgungsnetz von Bewegungsräumen und Sportanlagen, das die Bewegungsbedürfnisse der Menschen aller Altersgruppen abdecken kann."*

www.irap.ch

2

### Ausgangslage

Gemeinderatsbeschluss 3. April 2007: Ausarbeitung eines den zeitgemässen Bedürfnissen von Sport und Bewegung entsprechenden Sportkonzepts (GESAK), welches sämtliche städtische Räume und Infrastrukturen für Bewegung und Sport einbeziehen soll.

Baustein 1: Grundlagenerhebung und -analyse der sportspezifisch nutzbaren Räume, Bedürfniserhebung

Baustein 2: Gesamtkonzept mit Konzeptstudien und Vorprojekten für den anlagenbezogenen Sport und das Gebiet der Oberen Au

Baustein 3: Ergänzung um Dezentrale Räume und Infrastrukturen für Sport und Bewegung sowie die Erhebung dahin gehender Bedürfnisse der Stadtbevölkerung

www.irap.ch

AUSGANGSLAGE CHUR

4

### C: Zugang zum Thema Bewegung an sich

Vier Bewegungsformen:

1. ALLTAGSBEWEGUNG
2. SPIEL UND BEWEGUNG
3. SPORT
4. NAHERHOLUNG

## 8.7.3 Rapperswil – CAS Fuss- und Radverkehr und Gesundheit

CAS Fuss- und Radverkehr

### Kursprogramm

Kurstag	Zeit	Thema	Referent/in
<b>Modul Fuss- und Radverkehr und Gesundheit</b>			
<b>Mittwoch 26. Juni 2019</b> Hochschule Rapperswil Raum 4.112	ab 08.45	<b>Eintreffen</b> Kaffee und Gipfeli	
	09.05 – 09.15	<b>Begrüssung, Organisatorisches</b>	Klaus Zweibrücken, Carsten Hagedorn
	09.20 – 10.00	<b>Projekt Aktive Mobilität &amp; Gesundheit</b>	Sabina Ruff
	<i>Kaffeepause</i>		
	10.20 – 10.40	<b>Einführung Workshop "Bewegung im Alltag fördern"</b>	Klaus Zweibrücken, Carsten Hagedorn
	10.45 – 12.45	<b>Workshop "Bewegung im Alltag fördern"</b>	Klaus Zweibrücken, Carsten Hagedorn
	12.45 – 13.00	<b>Fazit des Vormittags, Schlussdiskussion</b>	
	<i>Mittagspause</i>		



CAS Fuss- und Radverkehr

### Kursprogramm

Kurstag	Zeit	Thema	Referent/in
<b>Modul Fuss- und Radverkehr und Gesundheit</b>			
<b>Mittwoch 26. Juni 2019</b> Hochschule Rapperswil Raum 4.112	14.15 – 14.30	<b>Grussworte</b>	Thomas Furrer (Stadtrat Rapperswil), Dr. Margit Mönnecke (Rektorin HSR)
	14.30 – 14.50	<b>Bewegung und Gesundheit – die Zusammenhänge / GEMEINDE BEWEGT</b>	Kathrin Amann (Fachstelle Gemeinden, Amt für Gesundheitsvorsorge Kanton SG)
	14.50 – 15.10	<b>Handlungsmöglichkeiten auf kommunaler Ebene – ein Überblick</b>	Klaus Zweibrücken
	15.10 – 15.30	<b>Animation zur Bewegung: Street Racket</b>	Marcel Straub (Gründer und Inhaber von Street Racket)
	<i>"Bewegungspause"</i>		<i>Einführung Street Racket</i>
	16.15 – 16.35	<b>Leben ist Bewegung – kommunale Bewegungspolitik</b>	Josef Blöchliger (Gemeindepräsident Eschenbach)
	16.35 – 16.55	<b>Metamorphosis/ab nach draussen – Kinderfreundliches Wohnumfeld</b>	Barbara Kieser (synergo Mobilität - Politik - Raum GmbH)
	16.55 – 17.15	<b>Bewegungsfreundliches Wohnumfeld</b>	Dr. Joachim Schöffel (Prof. für Stadtplanung, HSR)
	17.15 – 17.30	<b>Fragen und Diskussion</b>	
	Ab 17.30	<i>Apéro</i>	



## 8.7.4 Geneva - Activité physique, santé et environnement construit

### Trame du cours

- Inactivité et santé: état des lieux
- Aménagement, mobilité et santé: un jeu d'échelles
- L'accessibilité pour tous: un défi majeur pour la santé urbaine

- Il faut un minimum de 150 min/semaine d'activité physique intégrée dans la vie quotidienne pour une santé correcte (actif)
- Il faut 60 min (j) pour éviter le gain du poids avec l'âge
- Sédentaires (Inactifs) : personnes avec moins de 30 min d'activité physique/semaine (marche à bonne allure, vélo, jardinage, escaliers, etc.) qui fait accélérer la fréquence cardiaque et la respiration

### Diminution du risque de maladie avec activité physique au quotidien

Disease/report	Denmark, 2003 %	Norway, 2001 %	WHO, 2003 %	Switzerland, 2001 %
Hypertension		30		32
Cardiovascular disorders	40	50	33	46
Diabetes 2	>20	50		47
Osteoporosis	50			50
Breast cancer	50	20-30	20-25	28
Colon cancer	50	50		47
Gallstone	34			
Depression				68
Back pain				26

Kayser B., 2009

### Exemple de recommandations (1)

Intervention	Niveau de preuve
1) Concevoir les rues de manière à les connecter en maintenant un maillage fin, plus favorable à la pratique des modes actifs. [10]	+++
2) Renforcer la desserte du site en transports publics et l'intermodalité avec les modes actifs. [11]	++
3) Favoriser les liaisons qui donnent accès aux espaces verts à proximité des Prés-de-Vidy (Vallée de la Jeunesse, Parc Bourget, Donigny) [12]	++
4) Maximiser le potentiel de connexions avec le contexte de l'environnement urbain autour des Prés-de-Vidy en identifiant les principaux attracteurs et en anticipant les connexions futures (cimetière, projet Algro)	++
5) Créer des espaces publics attractifs, pour des séjours liés aux loisirs mais aussi aux activités quotidiennes, facilement accessibles pour les piétons et les cyclistes.	+

### Echelle des immeubles

Une problématique de design.. au défi des normes



### « Un espace public pour tous – Guide pour une planification cohérente »



- Un outil qui permet au professionnel de:
  - ✓ avoir des indications techniques qui correspondent aux réels besoins des piétons
  - ✓ comprendre en quoi la mesure d'aménagement recommandée représente une réponse aux manques d'un ou de plusieurs groupes-cible
  - ✓ éviter de chercher des réponses techniques dans plusieurs sources (normes, lois, ...)

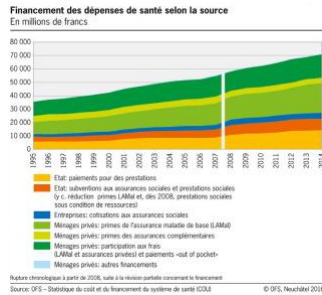
## 8.7.5 Lausanne - Mobilité durable: pratiques, aménagements, stratégies

### Santé publique

#### Conséquences de l'inactivité physique en Suisse (OFSP, 2013)

Chaque année:

- 2'900 décès prématurés (avant 70 ans)
- 2.1 millions de cas de maladies
- 2.4 milliards de frais de traitement directs



### Activité physique

#### Définition

- **Activité physique:** «Comprend l'ensemble des efforts exercés par la musculature squelettique qui a pour conséquence d'accroître la dépense énergétique au-delà de celle qui est propre au repos».
- **Sport:** «Implique le plus souvent des activités physiques d'intensité élevée, structurées, régies par des règles, et pratiquées dans des situations compétitives».

Bize R. Promotion de l'activité physique au cabinet médical. Manuel de référence à l'intention des médecins. Lausanne 2016.

#### Recommandations suisses pour les adultes en âge de travailler:

- Au moins 2.5 heures de mouvement par semaine, sous forme d'activités quotidiennes ou de sport d'intensité moyenne au moins
- Ou une heure et quart de sport ou d'activité physique d'intensité élevée

Office fédéral du sport <http://www.hepa.ch/fr/bewegungsempfehlungen.html>

## Améliorer la santé des gens... à leur insu

Le Temps, 12 mars 2018

**Promotion Santé Vaud lance un site unique en Suisse, contenant une soixantaine de propositions pratiques pour promouvoir l'activité physique et une bonne hygiène de vie. Elles reposent notamment sur des aménagements des villes et des bâtiments**

Comment modifier les environnements de vie des habitants pour promouvoir leur santé? Pour la première fois en Suisse, et même a priori dans le monde francophone, un portail web vient d'être lancé proposant un répertoire de plusieurs dizaines de mesures avec cet objectif. L'initiative, qui émane de Promotion Santé Vaud – anciennement Ligues de la santé – et de la Fondation vaudoise contre l'alcoolisme, pourrait faire des émules en Suisse. Avec un but à long terme: prévenir les maladies et faire baisser les coûts de la santé.

Les habitants ont accès depuis des années à un vaste catalogue de propositions qui les encouragent à pratiquer une activité physique: rien que dans le canton de Vaud, les initiatives «Pas de retraite pour ma santé» pour les seniors, «Ça marche à fond les formes» pour les enfants en excès de poids ou «Objectif 10 000 pas» pour les collaborateurs d'entreprises ont été lancées. «Ces mesures sont très efficaces, mais il faut en avoir connaissance et s'y inscrire. On constate qu'il est difficile de toucher les populations vulnérables, qui sont aussi celles qui ont le plus de risques de tomber malades», constate Florian Ruf, chargé de projet à Promotion Santé Vaud.

#### Inspiré de New York

D'où l'idée d'agir de manière globale et presque invisible pour l'ensemble de la population, via un catalogue de 60 mesures proposées sur le site environnements-sante.ch, mis en ligne cette semaine. Le contenu du site est ciblé sur quatre facteurs qui ont un effet prouvé sur les maladies non transmissibles: l'activité physique, l'alimentation, l'alcool et le tabac. Ce site s'inspire notamment, pour l'activité physique, d'un guide de 144 pages établi par la ville de New York en 2010, qui affirmait déjà que «le design environnemental sera un outil essentiel pour combattre le plus grave problème de santé publique de notre époque: l'obésité et les maladies chroniques qui en découlent».

## Améliorer la santé des gens... à leur insu

Pour le canton de Vaud, le catalogue est vaste. «Prenez un exemple tout simple, les escaliers. Ils sont souvent placés au fond d'une entrée, dans un espace mal éclairé, alors que les ascenseurs sont immédiatement accessibles. Nous suggérons aux architectes, mais aussi aux urbanistes, de mieux mettre en évidence les escaliers», poursuit Florian Ruf, chargé du projet Environnements-sante.ch. Le portail évoque aussi l'aménagement de cheminements piétons attractifs et sécurisés, pour permettre aux enfants et aux seniors notamment de se déplacer en toute autonomie dans leur quartier.

#### Réduire les coûts de la santé

Ces aménagements de l'environnement construit favorisent l'activité physique des habitants, à leur insu, ou presque. «Ces mesures ne sont pas toutes spectaculaires, reconnaît Florian Ruf. Elles n'offrent pas non plus des résultats immédiats et facilement quantifiables. Mais leur impact est réel. Et nous pouvons agir sur la santé des gens et sur l'ensemble du système, sachant que les maladies non transmissibles représentent plus de la moitié des décès en Suisse, mais aussi près de la moitié des coûts de la santé.»

Ce seront désormais aux urbanistes, aux architectes et aux pouvoirs publics de s'intéresser à ce répertoire de mesures. La démarche suscite déjà l'intérêt des milieux concernés: «La ville de Lausanne, qui commence à nous compter sur ces questions, manifeste une volonté claire de favoriser la mobilité douce, qui est évidemment bénéfique du point de vue de l'activité physique», poursuit Florian Ruf.

Raphaël Bize, médecin associé à l'Institut universitaire de médecine sociale et préventive à Lausanne. Un exemple concret: la mise en place d'un panneau qui indique si des impasses peuvent être empruntées à pied ou à vélo. «C'est une excellente initiative, car quand on est à pied, on est vite découragé par un détour. Et le futur quartier des Plaines-du-Loup, du projet Métamorphose, devrait intégrer les notions de design environnemental via le projet Métasanté.»

## Améliorer la santé des gens... à leur insu

#### Penser à long terme

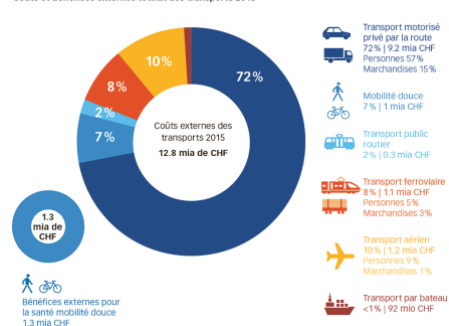
La partie n'est cependant pas gagnée, comme le reconnaît Florian Ruf. Il faudra convaincre les urbanistes d'intégrer la dimension santé. Et aux politiciens, centrés sur le très court terme, de penser dans une temporalité totalement différente. Mais Raphaël Bize, médecin associé à l'Institut universitaire de médecine sociale et préventive à Lausanne, est optimiste: «Jusqu'à récemment, ces mesures étaient vues comme une entrave, mais les milieux politiques commencent à prendre conscience de l'utilité du design environnemental. Même si les effets peuvent prendre plusieurs années avant de se manifester.»

Selon le médecin, le débat de plus en plus vif sur la hausse des coûts de la santé va permettre à ce catalogue de mesures de trouver un écho positif. «Je devine qu'en Suisse, pays libéral, ce genre de contraintes est parfois vu d'un mauvais œil. Récemment, un projet de loi fédérale qui impliquait de mesurer l'impact des décisions politiques sur la santé a échoué, car il avait été perçu comme une entrave à la liberté économique... Mais la situation évolue et le lancement de ce portail contribuera à sensibiliser l'opinion publique à l'intérêt de promouvoir des environnements favorables à la santé.»

#### Pour des environnements favorables à la santé

Un environnement favorable à la santé est un environnement qui exerce une influence positive sur l'état de santé des individus, en facilitant les choix bénéfiques à la santé. <https://www.environnements-sante.ch>

#### Coûts et bénéfices externes totaux des transports 2015





## 2. Keep Active

Global and meta-studies demonstrate that physical activity reduces symptoms of mental and physical ill-health.

Krogh, J., Nordentoft, M., Sterne, J., & Lawlor, D. (2011). The effect of exercise in clinically depressed adults: systematic review and meta-analysis of randomized controlled trials. *Acta Psychiatrica*, 129-138.

Lee, J., Shiroma, E., Lobelo, F., Puska, P., Blair, S., & Katzmarzyk, P. (2012). Impact of physical activity on the world's major non-communicable diseases. *Lancet*, 380-390.

Sofi, F., Valecchi, D., Bacci, D., Abbate, R., Gensini, G., Casini, A., et al. (2011). Physical activity and risk of cognitive decline: a meta-analysis of prospective studies. *Intern Med*, 150-157.



## 2. Keep Active

Urban design characteristics associated with increasing activity include:

- access to physical activity facilities,
- convenient and proximate access to destinations,
- high residential density,
- mixed land use and
- walkability.

Bauman, A., & Bull, F. (2007). *Environmental correlates of physical activity and walking in adults and children: A review of reviews*. Loughborough: National Centre for Physical Activity and Health, for the National Institute of Health and Clinical Excellence (NICE).



## 2. Keep Active

- physical activity outdoors and preferably in natural environment, but exercise indoors can be equally effective.

Thompson Coon, J., Boddy, K., Stein, K., Whar, R., Barton, J., & Depledge, M. (2011). Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. *Environ Sci Technol*, 1761-1772.

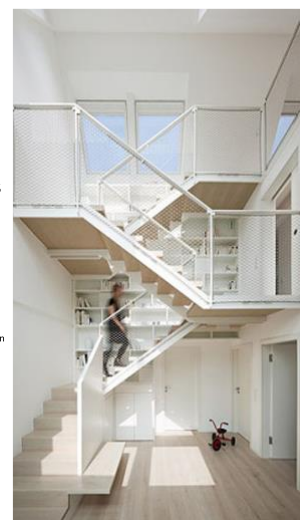
- Design strategies to promote indoor physical activity include:
  - exercise space,
  - stair use, and
  - attractive circulation routes



## 2. Keep Active

- Three-storey homes to increase personal energy expenditure.
- Climbing one floor by stairs accounts for approximately 3% of extra daily energy expenditure.
- Getting up 20 times from a seated position equates to about 10% of a healthy daily total of metabolic activity.

Baker, N., Rasia, S., & Steemers, K. (2011). Designing for occupant movement in the workplace to improve health. *5th International Symposium on Sustainable Healthy Buildings* (pp. 25-33). Seoul: Centre for Sustainable Healthy Buildings, Kyung Hee University.



## 2. Keep Active

- Make circulation an enjoyable experience and provide rewards for the movement
- Separate key spaces with stairs to encourage movement

Baker, N., Rasia, S., & Steemers, K. (2011). Designing for occupant movement in the workplace to improve health. *5th International Symposium on Sustainable Healthy Buildings* (pp. 25-33). Seoul: Centre for Sustainable Healthy Buildings, Kyung Hee University.



## 8.8 Email

### 8.8.1 Architecture – Northwestern Switzerland - Christina Schumacher

Lieber Herr Zedi

Leider muss ich Sie enttäuschen. In den Kurs Sozialwissenschaften im ersten Semester baue ich ein Modul zur hindernisfreien Architektur ein, das ich je nach Möglichkeit auch mit einem persönlichen Besuch einer mobilitätseingeschränkten Person erweitere, die aus ihrem Alltag im öffentlichen Raum erzählt - das ist aber vermutlich nicht, was Sie meinen, denn es geht um den öffentlichen Raum, nicht um die Gestaltung von Gebäuden und nicht um eine chronische Krankheit (kann es natürlich sein, wenn die mobilitätseingeschränkte Person an einer fortschreitenden Muskelschwächung leidet, aber das ist nicht der Fokus). Der allgemeinere Zusammenhang von räumlichen Gestaltungsprinzipien, die körperlicher Ertüchtigung entgegenkommen, ist hier nicht primär im Blick.

Langer Antwort kurzer Sinn: Gutes Thema, ist aber leider nicht Gegenstand unserer Lehrveranstaltungen. Diese künftig damit zu erweitern wäre eine gute Idee - nützt jedoch nichts für ihre gegenwärtige Masterthesis.

Mit dieser wünsche ich Ihnen viel Erfolg und spannende Ergebnisse.

Freundliche Grüsse  
Christina Schumacher

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## 8.8.2 Landscape architecture – ETH Zurich – Dunja Richter

Monday, June 8, 2020 at 11:34:55 Central European Summer Time

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**Objet:** AW: Ihre Hilfe an einem Forschungsprojekt: gebautes Umfeld und Gesundheit  
**Date:** mardi, 21 avril 2020 à 18.21:41 h heure d'été d'Europe centrale  
**De:** Richter Dunja  
**À:** Matthias Zedi  
**Pièces jointes:** image001.png

Lieber Herr Zedi

Vielen Dank für Ihre Anfrage und Hartnäckigkeit!

Bitte entschuldigen Sie meine späte Rückmeldung. Wir stecken gerade mitten in der Vorbereitung für unseren neuen Masterstudiengang in Landschaftsarchitektur, der im HS 20 startet.

In unserem Studiengang berücksichtigen wir die Themen Gesundheit und körperlicher Aktivität, da diese Themen für die Landschaftsarchitektur ausserordentlich wichtig sind.

Beim Entwerfen und Planen von öffentlichen und privaten Freiräumen ist es erforderlich, soziale Funktionen und die spätere Nutzung einzubeziehen.

Dementsprechend spielt Bewegung und Aktivität eine wichtige Rolle, die wir immer mitdenken.

Dem Thema Gesundheit widmen wir im zweiten Semester einen Schwerpunkt. Es geht um die Frage, wie kann eine "gesunde Stadt" zu einer verbesserten Lebensqualität und Wohlbefinden beitragen.

Wir fokussieren hier auf gesellschaftliche, gesundheitspolitische und umweltstrategische Themen.

Da diese Lehrveranstaltungen erst im FS 21 stattfinden, kann ich Ihnen leider keine Unterlagen zur Verfügung stellen. Ich hoffe, dass meine Antwort, Ihnen zumindest etwas weiterhelfen konnte.

Für das Gelingen Ihrer Masterarbeit wünsche ich Ihnen viel Erfolg.

Freundliche Grüsse

Dunja Richter  
Dipl.-Ing. Landscape Architecture  
Program Coordinator MSc ETH LA

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Program website  
[www.mscla.arch.ethz.ch](http://www.mscla.arch.ethz.ch)

**Monday, June 8, 2020 at 11:43:26 Central European Summer Time**

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**Objet:** AW: Gebautes Umfeld und körperliche Aktivität

**Date:** mardi, 7 avril 2020 à 16.23:38 h heure d'été d'Europe centrale

**De:** Gasser Markus

**À:** Matthias Zedi

Im Master wird wenig Städtebau unterrichtet - deshalb wird das Thema nicht explizit behandelt. Im Bachelor haben wir 3-4 Städtebauvorlesungen - da wird öfters darauf Bezug genommen. Es werden viele Themen dazu in Zusammenhang gebracht - aber eben: Eine konsequente Auseinandersetzung über "Bewegung und Gesundheit" ... dies eher nicht. Überfolgende Aspekte reden und lehren viele Kollegen bei uns:

- \_ Wohnhygiene und Wohnumfeld im Sinne von guten, brauchbaren Frei- und Erholungsräume
- \_ Nachhaltige und Klimagerechte Stadt  
(nicht nur im ökologischen Sinn, sondern auch soziale Nachhaltigkeit / Wohlbefinden)  
(Themen wie menschengerechte, lebenswerte Stadt, auch Sicherheit, Arbeit)
- \_ Stadt der kurzen Wege: nicht Autofahren, sondern Gehen und Vélofahren  
(dazu planerisch natürlich: Platz für Fussgänger und Fahrräder, Tempo30, Tempo20 und autofrei)
- \_ Nächst- und Naherholung (im Quartier, im Stadtteil, am Stadtrand)
- \_ Kommunale und Regionale Freiräume
- \_ Freizeit: Bedürfnisse, Verhalten, Freizeit-Mobilität
- \_ v.a. auch Richt- und Nutzungsplanung: Dazu natürlich viel planerisches Wissen  
(welche Nutzungen benötigen welche Infrastrukturen und Investitionen)
- \_ Einige Vorlesung zu Tourismus (regionaler und nachhaltiger)
- \_ Gärten, Parks, Grünflächen- Anteil erhöhen (ZH: sollte 8 qm/Person sein)

... so werden von den meisten Profs mannigfache Bezüge immer wieder dargelegt. Aber ein spezifisches Modul zum Thema kenne ich nicht.

Beste Grüsse  
Markus Gasser

Markus Gasser  
markus.gasser@hsr.ch

## 8.8.4 Urbanism – EPFL – David Vernez

Bonjour,

Je vous réponds avec un peu de retard, désolé.

Effectivement, j'enseigne dans un master destiné aux étudiants de l'ENAC. Mon cours porte principalement sur la relation entre l'environnement et le risque sanitaire. Nous abordons essentiellement les risques liés aux agents physiques, chimiques et biologiques de l'environnement. L'activité physique ne fait en revanche pas partie des thèmes abordés, sauf de façon très indirecte, comme la relation entre l'activité physique et le stress thermique dans les milieux chauds (mais il s'agit là uniquement de l'activité physique liée à l'activité professionnelle).

J'ai peur que votre sujet ne soit pas abordé régulièrement dans les cours de l'ENAC.

Cordialement,

David Vernez

Prof David Vernez | Chef de département

David Vernez  
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Monday, June 8, 2020 at 12:13:48 Central European Summer Time

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**Objet:** Re: Active Design Switzerland, university of Lausanne

**Date:** jeudi, 5 mars 2020 à 17.38:32 h heure normale d'Europe centrale

**De:** Gayle Nicoll

**À:** Matthias Zedi

Thank you for your interest in this topic. Within the structure of the design education system, active design has not really commanded the development of specialized courses. I taught one course on Active Design for a special topic studio 10 years ago to 4th year undergraduates in the University of Texas at San Antonio Architecture program. The studio was one of many special studio projects offered to the cohort and it had 10 students. The studio aligned with a research project and considered the design of affordable housing projects that provided active living features for children 3 - 18 years of age. There was a publication that included some of the studio's effort produced. It is accessible from the Center of Active Design website - titled: Active Design-Affordable Design for Affordable Housing.

I do teach active design in my graduate courses at OCAD University but align with other purposes. I teach a research methods course where I use Active Design as an exemplar to show how foundational research and a priori research is used through research translation to create policies such as programming requirements, guidelines and occasionally building code requirements (such as the New York City building code where they incorporated 4 articles that addressed Active Design in Buildings). I also created a program titled Design for Health which is structured to have each semester consider an expanding context for issues in design related to health (1st semester is corporeal which focuses on more human factor and industrial design methodology; 2nd semester is spatial which includes interior design, architectural theory and methodologies (including Active Design); 3rd semester is systems design which includes larger health systems issues and policy creation, and the 4th semester allows students to pursue their own interests more independently or return to deeper considerations of one or more of the previous semester themes/projects.

So this semester, I teach in the spatial semester and the class is working on a project to create an Age-friendly Neighbourhood Audit Tool for a Regional Municipality adjacent to the City of Toronto (a real project). The project includes Active Design but also other aspects of Active Aging. I also teach in the Inclusive Design program at the University and have worked with students on projects that address diverse populations and human rights so access to environments that promote healthy lifestyles (including Active Design) feature as a component of the project's requirements.

So I don't see that architectural education is likely to have specific courses or studios on Active Design as it sometimes have for topics like Sustainability, but I encourage the topic to be included in any course that focuses on sustainability, accessibility and diversity, health and even the history of urban environment since the greatest achievements in combatting infectious disease in the first half of the 20th century were achieved through environmental initiatives before the start of the pharmaceutical era.

Hope that helps

Gayle Nicoll

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**From:** Matthias Zedi <matthias.zedi@unil.ch>

**Sent:** March 3, 2020 7:24 AM

**To:** Gayle Nicoll <gnicoll@faculty.ocadu.ca>

**Subject:** Active Design Switzerland, university of Lausanne

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Monday, June 29, 2020 at 16:50:27 Central European Summer Time

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**Objet:** AW: Kurze Frage zum Ihrem Kurs: "Architectural Design V-IX: The Dark Side of the Sihl"

**Date:** mercredi, 27 mai 2020 à 19.11:29 h heure d'été d'Europe centrale

**De:** Kowalewski Benedikt

**À:** Matthias Zedi

**Cc:** Janz Claudia

Hallo Herr Zedi,

wir haben beim Kurs "The Dark Side of the Sihl" lediglich am Rande erwähnt, dass eine attraktivere Aussen- und Freiraumgestaltung und die damit einhergehende Nutzung dieser Bereiche auch einen positiven Effekt auf die körperliche und geistige Gesundheit haben. In unseren Entwurfskursen beschäftigen wir uns hauptsächlich mit Problemen extrinsischer Natur (Überflutung, Dürre, Verschmutzung etc.). Da die meisten Entwürfe jedoch auch das Wohlergehen der Bewohner/Nutzer/Anrainer etc. zum Ziel haben, ist natürlich auch die Nutzung der entworfenen Landschaften für jegliche Freizeitaktivitäten ein zentrales Thema für unsere Studierenden. Der Zusammenhang zwischen körperlicher Aktivität und Gesundheit wird dabei nicht explizit behandelt; es wird vielmehr angenommen, dass ein verbessertes Angebot an Freiflächen für z.B. Sport auch zu einer besseren allgemeinen Gesundheit der Bevölkerung führt. Insofern haben wir keine Slides oder ähnliches, um unser Engagement für mehr körperliche Aktivität zu beweisen; zumal dieses Thema höchstens in informellen Gesprächen mit den Studierenden diskutiert wird.

Ich hoffe damit Ihre Frage hinreichend beantwortet zu haben. Es tut mir leid, dass ich keine entsprechenden Unterlagen vorweisen kann.

Viel Erfolg bei Ihrer weiteren Recherche und Abschlussarbeit,

freundliche Grüsse

Benedikt Kowalewski

**Benedikt Kowalewski**  
PhD Researcher | NCCR Digital Fabrication | Professor Christophe Girot

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Monday, June 29, 2020 at 17:07:54 Central European Summer Time

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**Objet:** Re: Fragen zur Vorlesung Fuss- und Veloverkehr  
**Date:** mardi, 12 mai 2020 à 15.15:31 h heure d'été d'Europe centrale  
**De:** Urs Walter [urserik](mailto:urserik@bluewin.ch)  
**À:** Matthias Zedi [urserik@bluewin.ch](mailto:urserik@bluewin.ch)  
**Pièces jointes:** Curriculum\_2020\_online.pdf

Sehr geehrter Herr Zedi

Tut mir leid für meine verzögerte Antwort.

Ein interessantes Thema habe Sie sich da für Ihre Masterarbeit ausgewählt. Die Zusammenhänge zwischen aktiver Mobilität und Gesundheit sind mir natürlich bekannt. Insbesondere wenn die Effekte noch monetarisiert werden, sind diese ganz wichtige Argumente für die Förderung des Fuss- und Veloverkehrs.

Unsere Vorlesung ist infrastrukturorientiert. Die Gestaltung des öffentlichen Raumes und deren Einfluss auf Aufenthaltsqualität, Wohlbefinden, etc. wird immer wieder thematisiert.

Der konkrete Zusammenhang zwischen der körperlichen Aktivität dank Gehen und Velofahren und der Gesundheit wird aber nur am Rande erwähnt.

In der Einführungsvorlesung werden beispielsweise die Stärken des Fuss- und Veloverkehrs in den den drei Nachhaltigkeitsdimensionen aufgelistet. Darunter die Aspekte, dass Gesundheit und Wohlbefinden gefördert wird, den Menschen eine selbständige Teilnahme an der Mobilität ermöglicht wird und dass Gehen eine elementare Erscheinungsform des Menschen ist (quasi ein Grundrecht).

Im Themenbereich hindernisfreie Verkehrsräume werden die Bedeutung der selbständigen Mobilität für eine hohe Lebensqualität, für soziale Kontakte, für die Gesundheitsförderung sowie die gesunde motorische und soziale Entwicklung von Kindern erwähnt.

Wir gehen aber, wie erwähnt, nicht vertieft auf gesundheitliche Effekte und deren Nutzen für die Gesellschaft ein.

Ich nehme Ihre Anfrage aber als Anregung, diesen Aspekt allenfalls nächstes Jahr zumindest etwas vertiefter zu behandeln.

Ich hoffe, dass ich Ihnen mit dieser Antwort dienen konnte. Beiliegend finden Sie noch das Curriculum der Vorlesung. Für allfällige weitere Frage stehe ich gerne zur Verfügung.

Freundliche Grüsse  
Urs Walter