‘Fit for free’: a qualitative study on the use of urban parks for performing strength exercises

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Explanation on the front cover image:
A bootcamp group running up and down ‘the hill’ in Park Transwijk as a part of their warming-up (2018) (own material).

Foreword

In front of you is my research on how people use parks for strength exercises. I have been working on this topic for the past 4 months. This research was carried out within the framework of the Human Geography master program at Utrecht University.

I would like to thank Dick Ettema and Karlijn Sporrel. Dick and Karlijn were my supervisors for the last 4 months. They often provided me with feedback, gave tips and helped if I had any questions regarding the research. Thanks to their help, I could constantly continue with the research to finish it in time.

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Introduction

''Physical inactivity is now identified as the fourth leading risk factor for global mortality'' (World Health Organization (WHO), 2010, p. 7). In many countries the general trend is that levels of physical inactivity are rising. The rising levels of physical inactivity have implications for the general health of people around the world. Physical inactivity has implications for the prevalence of non-communicable diseases such as cardiovascular disease, diabetes and breast and colon cancers and their risk factors such as raised blood pressure, raised blood sugar and overweight (WHO, 2010, p. 10). Physical inactivity is seen as a cause of premature mortality. To be more specific, it is estimated that physical inactivity causes nine percent of the worldwide premature mortality and that the life expectancy of the world population would increase with the elimination of physical inactivity. Suppose that worldwide physical inactivity is not eliminated but inactivity levels are decreased instead by twenty-five percent, more than 1,3 million deaths could be averted every year. To put this in a perspective, physical inactivity seems to have an health effect which is similar to that of smoking and obesity (Lee et al., 2012).

Participation in a sufficient degree of physical activity (PA) reduces the risk of the aforementioned non-communicable diseases. The WHO defines a sufficient degree of PA as follows: at least 150 minutes of moderate aerobic physical activity a week for adults and seniors (age>18) (WHO, 2010, pp. 10). More recently, *De Gezondheidsraad (The Health Council)* came up with a new guideline for a sufficient degree of PA for Dutch residents. The guideline is as follows: at least 150 minutes moderate intensive effort (e.g. walking, biking) spread over several days, muscle- and bone strengthening activities (activities whereby the body is piled with its own weight) at least two times a week and avoid sitting still for a long time (Gezondheidsraad, 2017, p. 4).

Research has shown that several environmental factors (such as urban design, transportation systems and parks) can contribute to the propensity of people to be physically active (Bauman et al., 2012). Urban parks and green spaces provide opportunities for being physical active (Brown, Schebella & Weber, 2013, p. 34). Parks are an important public resource in cities to get people involved in PA, because parks, in general, are free to use and therefore are accessible for everyone and this could help to involve people in PA which can be beneficial for people's health and wellbeing (Veitch et al, 2017, p. 52).

Park visits alone do not necessarily induce 'active' park use, it is possible that park users are only sedentary active instead of vigorously active (Van Dyck et al., 2013, p. 7). Therefore, research is done about the associations between park characteristics and PA. Some of the existing research focuses on general park characteristics (such as park accessibility and park size) and how they influence PA levels (Kaczynski, Potwarka & Saelens, 2008; Veitch et al, 2017). These studies try to find the explanatory factors that could encourage park use and physical activity in parks (McCormack, Rock, Toohey & Hignell, 2010, p. 723). The existing research (e.g. Kaczynski et al., 2008; McCormack et al., 2010; Veitch et al., 2017) used the guideline for PA of the WHO (2010) as a starting point. So the existing research focused on how environmental factors in parks could influence moderate aerobic physical activity. However, the guideline for a sufficient degree of PA of De Gezondheidsraad (2017) also includes muscle- and bone strengthening activities. Because previous studies have not used the guideline of De Gezondheidsraad (2017), knowledge about the use of parks for exercises which are intended to strengthen muscles and bones (so-called strength exercises) is very limited. Also little is known about the use of park facilities which are intended to improve PA.

Because of the limited knowledge about the performance of strength exercises in parks research is needed. New specific knowledge about the usage of parks for specific forms of PA could be beneficial for urban planners and architects who deal with the (re)development of parks (Lindberg & Schipperijn, 2015, p. 917).

Problem statement

This research tries to enlarge the existing knowledge about the specific forms of PA (strength exercises) which are carried out in parks and aims to provide a better understanding of people their preferences while using a park for strength exercises. To be more specific, which park features are of interest for the park users who use parks for doing strength exercises and why are these features of importance. The aim of this research is to make a contribution to the understanding of how parks are used for strength exercises and which/what kind of park features are preferred by people who use parks for strength exercises. As described in the introduction, there is still limited knowledge about the usage of urban parks and park facilities, e.g. facilities are not always used as intended (Lindberg & Schipperijn, 2015). Therefore, the research question of this research is as follows:

How are people using parks for strength exercises and what park features are preferred for the performance of the strength exercises in Utrecht?

The additional sub questions are:

- Why have people chosen to perform strength exercises in parks?
- When are people going to the park for exercises?
- Which parts of the parks are used for strength exercises?
- What strength exercises are performed?
- What restrictions and/or positive factors are people experiencing for doing exercises in parks?

Societal relevance

It is clear that physical inactivity is a general worldwide problem (Lee et al., 2012). The situation in the Netherlands is no different when it comes to a high level of physical inactivity among the adult population. Recent calculations of *the Rijksinstituut voor Volksgezondheid en Milieu* (RIVM) show that 56 percent of the Dutch adults do not meet the exercise standard of 150 minutes moderate intensive effort spread over several days, muscle- and bone strengthening activities at least two times a week and avoid sitting still for a long time (Gezondheidsraad, 2017, p. 33). Based on this determination one could argue that there is still much room for improvement when it comes to the increase of levels of PA among the adult population.

Increasingly, authorities also recognize that the built environment is an important factor with the the potential to make participation in PA more attractive and thereby contribute to more engagement in PA (Ettema, 2016, p. 1128). Therefore, when designing the physical environment of parks one can take the idea of 'promotion' of PA into account, in order to achieve a change in exercise behaviour (Gezondheidsraad, 2017, p. 34). For the planning of healthy and sustainable communities it is essential to understand and get a better insight in the factors that influence the use of urban parks and qualitative research could contribute to a better insight (Brown et al., 2013, p. 35).

To contribute to a better development of (future) parks, more specific knowledge about the use of parks should be generated (Lindberg & Schipperijn, 2015).

This research will examine which park features are preferred by people who are using the park for performing strength exercises. The results of this research could be of added value for local authorities or local policymakers who are responsible for the maintenance and development of parks and want to create a park which is, among other things, suitable for performing strength exercises. The performance of strength exercises eventually should lead to a reduced risk of non-communicable diseases.

Chapter 1: Theoretical Framework

This chapter will give a review about what is known about park use and associated topics. The first topic which will be reviewed is about a social ecological perspective on human behaviour. After this, there will be looked at parks as public space. Then a short review is given about the influence of the physical environment on park use. Finally, the last two paragraphs will describe what is currently known about how people are physically active in parks.

§1.1 A social ecological perspective on behaviour

PA is a form human behaviour and it is important to be physical active because of the health benefits linked to PA (see introduction). Behavioural PA research used to focus on individual determinants of PA. This approach, however, became criticised because of the emphasis on the individual and because it does not takes into account in what context health behaviour takes place. A focus on broader determinants of behaviour is consistent with a so-called social ecological perspective of human behaviour (Giles-Corti & Donovan, 2002, pp. 1793).

A social ecological perspective refers to people's transactions with their physical and sociocultural environments. The general stand of ecological models of behaviour is that environments can restrict the range of behaviours by promoting and sometimes demanding certain actions by discouraging or prohibiting other behaviours (Kaczynski & Henderson, 2007). According to a social ecological perspective of human behaviour; health behaviour (e.g. PA) is a result of the interaction between the individual-, social- and physical environment (Giles-Corti & Donovan, 2002, pp. 1793). The physical- and social environment add explanatory value beyond the individual factors that influence people's involvement and participation in PA (Kaczynski & Henderson, 2007). Based on this social ecological perspective it can be expected that certain physical behaviour is the result of the interaction of all three factors.

The physical environment is one of the environments that can be important, because environmental design and policies are effective in influencing the public's level of PA (Chow, 2013, p. 1). Evidence suggests that the built environment can both enable and limit PA participation (Bedimo-Rung et al., 2005). It is important to keep in mind that it is not only the built environment that influences peoples behaviour. The physical environment offers action possibilities (affordances) for people that could invite certain behaviour. However, people are possible to resist these invitations. People are capable of selecting or resisting affordances and to decide to actualize an affordance (Withagen, Araújo & De Poel, 2017). In the context of achieving recommended PA levels, Giles-Corti and Donovan (2002), found that good access to facilities in the physical environment is necessary to create a supportive environment for PA. Having a good access to recreational facilities, however, is necessary but in itself insufficient to achieve the recommended levels of PA.

Besides the physical environment, the individual- and social environmental factors also have a direct influence on behaviour. After checking for individual and social environmental factors, the physical environment explains only a part of the direct influence on behaviour. It was found that achieving the recommended level of PA is more strongly associated with individual determinants than either social or physical environmental determinants. Examples of individual determinants which influence PA are the perceived behavioural control and the use of behavioural skills are both determinants of the physical activity behaviour. People who already regularly exercised in the past are more likely to do so in the future (Giles-Corti & Donovan, 2002, p. 1808).

Other research found that social environmental determinants at their turn outweigh the role of physical determinants. A study of Stahl et al. (2001) found that the social environment is a relatively strong predictor of being physical active. People who received little social support from their personal environment (e.g. friends, family, co-workers) were twice more likely to be inactive compared to the people who reported that they received a high level of support. Social support also is an important factor in the maintenance of physical activity. People who for example have a exercise partner or who are members of a sport club are more likely to achieve recommended levels of physical activity (Giles-Corti & Donovan, 2002, p. 1808).

According to a social ecological perspective, the physical environment (spatial context) is one aspect that influences the physical behaviour of people. Since this research focuses on park characteristics and park features for doing strength exercises, the focus in the theoretical framework will be on the physical environment related to PA and more specifically strength exercises. The next paragraph will introduce the physical environment which is of importance in this research, namely (urban) parks.

§1.2 Parks as public space and leisure place

Urban public space is an important part of peoples daily life, for instance people walk or ride through the street everyday. In the 1970s and early 1980s, Dutch policymakers paid little attention to public space in cities. However, later on the interest of policymakers shifted to the quality of public space in the city centre. This attention shift was reflected in the Fourth National Policy Document on Spatial Planning (*Vierde Nota Ruimtelijke Ordening*). The policy document induced the redevelopment of many public spaces in Dutch city centres in order to improve the liveability of cities (Van Melik, 2008, p. 15). There are multiple definitions of public space (different authors have different definitions), but public space can be understood as a space which is (freely) accessible to everyone and usable for multiple activities regardless of time and season. Public space can take multiple forms, one can for instance think of streets, squares or parks (Van Melik, 2008, pp. 18-19).

Especially in cities, parks and green spaces provide opportunities to reconnect with a 'natural environment' which in itself already is beneficial to people's health and wellbeing (Brown et al., 2013, p. 34). Since (most) parks are public, parks are generally accessible for all people. Parks provide opportunities for people of all ages to engage in PA and because of the free accessibility parks have the potential to attract diverse visitor groups (i.e. people with a different age or different socioeconomic groups). Parks are multifunctional and one of those functions is the leisure function of parks (Van Hecke et al., 2016; Messelink, 2002). ''Leisure can be loosely defined as the time spent out of work and domestic activity on such activities as recreation, cultural events, sports and social visits'' (Ettema & Schwanen, 2012, p. 173). There is a continuous growth in the prevalence of outdoor recreation activity participation and local parks function as a place for this participation. When it comes to the recreational use of parks, walking remains the most popular activity, followed by more forms of sedentary activity such as family picnics or viewing scenery (Bedimo-Rung, Mowen & Cohen, 2005).

Despite that parks are public space, it seems some people are less likely to use parks. Park activity participation rates namely depend upon a variety of demographic, socioeconomic and regional characteristics. For example, people who are relatively poor are much less likely to report participation in outdoor activity than other residents. But other groups, such as older adults, ethnic minorities and females are also more likely to be infrequent or non-users of parks. Other examples of individual determinants that can

influence people reasons for not engaging in park-related activities can include lack of time, money, personal health, information, transportation and access, safety concerns, maintenance and/or inadequacy of park facilities, and the lack of leisure companions (Bedimo-Rung et al., 2005).

In general, public parks are open 24 hours a week, but this does not mean that the park is visited all the time. It is not unusual that park visitation numbers are low at certain times. Park visitation numbers and the use of parks can for instance differ between workweek and weekend days. A study from Van Hecke and others (2016) found in their study about parks in Ghent (Belgium) that park visitation was the smallest during the morning and weekends. A study about metropolitan parks in Australia, however, showed that numbers of park visitors where highest in the weekends (Veitch et al., 2015). The contradiction in results is probably due to differences in size and location of the parks. The parks included in the Australian study where large metropolitan parks located outside the city (which means longer travel time), while the parks in Ghent were smaller parks located in the city. These two studies show that the main visitation times in parks can differ between the workweek and weekend (Van Hecke, 2016, p. 10).

§1.3 The built environment and park use

As shown in paragraph 1.1, the built environment (physical environment) facilitates or restricts opportunities for certain behaviour. Parks have been acknowledged as an important behavioural setting for PA. Research has been done in terms of associations between PA and park features. It seems that the number of park features are a significant predictor for the physical active use of a park (Kaczynski et al., 2008). Park features can be divided into two categories: facilities and amenities. Facilities are defined as features of parks that are primary settings for PA (e.g. paved trail, water area, soccer pitch or basketball court). Amenities are defined as features of parks that might support opportunities for PA (e.g. restrooms, trash cans, benches, bike rack, historical features etcetera). Access to a variety of park features that support active and passive recreational activities are important for PA levels (Kaczynski et al., 2008, pp. 1452-1454).

In the study of Kaczynski et al. (2008), parks that were used for PA had a higher number features than parks which weren't used for PA. Three individual facilities were significant associated with park based PA, these facilities are wooded areas, paved and unpaved trails. The relationship was the strongest for paved trails. These findings suggests that park planning can affect levels of physical activity. Parks developed with more facilities and amenities will appear more likely to attract users for active purposes. Some nuance, however, need to be added because the total number of facilities do seem to influence the PA in a park; there seems to be no relationship between PA in parks and adding facilities specifically aimed at PA (Schipperijn, Bentsen, Troelsen, Toftager & Stigsdotter, 2013).

Park features can also discourage people to use the park instead of encouraging park use. This can be the case when features are poorly equipped or out-dated. Adding to that, it is also possible that specific park features encourage or discourage park use only for some specific groups. For example, certain features for children such as sufficient play equipment and playgrounds where they can play. If play facilities are age-inappropriate, poorly equipped, out-dated, or mentally or physically un-stimulating parent will not take their kids to the park. Another example are dog owners, for who it can be important that dog litter bins and bags and other dog-specific agility equipment

is present. It seems that different types of facilities and amenities support specific forms of behaviour among different segments of the population (McCormack et al., 2010).

§1.4 Physical activity in urban parks

Although urban parks and urban green spaces provide excellent opportunities for PA, sedentary activities still remain popular activities in urban parks. Yet, this is not necessarily negative because people who use parks for sedentary activities may travel to the park using a active mode of transport (e.g. travel to the park by foot or bike) (Van Hecke et al., 2017, p. 9). On the other hand, people can be more vigorously active in parks. Many parks have specific facilities for sports, exercises or other vigorous activities such as jogging (Cohen et al., 2007, p. 509). People can engage in 'different' forms of PA in parks. Brown et al. (2013, p. 37) observed different forms of PA in parks and classified these forms into one of three intensity categories (low, moderate, high) (see figure 1).

Figure 1: Overview of different forms of PA in parks

Physical activity	Intensity
Very slow walking/strolling	Low
Moderate-paced walking	Moderate
Fast-paced walking	Moderate
Jogging or running	High
Cycling slowly	Moderate
Cycling briskly	High
Moderate intensity sport	Moderate
High intensity sport	High
Resting/sitting	Low
Standing activity	Low
Using playground/fitness equipment	Moderate
Yoga/stretching	Low
Boot-camp or fitness program	High

Source: Brown et al., 2013, p. 37

It seems that the difference in physical activity levels can be explained by the kind of park area people visit or the facilities which are available to people in the parks (Van Hecke, 2016, p. 2). High intensity PA, for instance, is associated with so-called linear parks (parks which are substantially longer than wide) (Brown et al., 2013, p. 40).

The number of parks (within a 1 km buffer) also influence PA. Having a greater number of parks close by (within a 1 km buffer) is more important for PA than having one large park close by. This suggests that having multiple parks relatively close by will give people access to parks that vary by the types of activities that are supported and characteristics of people who visit the park. The existence of multiple (nearby) parks probably increases the possibility that people can find the 'right' park which enables them to perform the preferably physical activities in a park that suits their preferences (Schipperijn et al., 2017, p. 258). Every form of PA has typical characteristics in terms of speed, intensity or for instance sensory experiences and therefore one cannot assume that an environment that is attractive for slow walking or cycling slowly is equally attractive to people who want to perform a bootcamp program (Ettema, 2016, pp. 128-129). In addition, there are some individual characteristics which influence park use for exercising in parks are gender, age and distance relative to the park. Men are more likely to use a park and have a higher frequency of exercising in the park, just as being younger (with a minimum age of 18) and living within 1 mile of a park are also positively

associated with park use and the frequency of performing exercises (Cohen et al., 2007, p. 513).

This research focuses on the performance of strength exercises and which park features might be appreciated by the people who perform these exercises. Despite the new guidelines concerning PA, surprisingly little is known about strength exercises in urban parks. No scientific article has been published (as far as known to the writer) about the performance of different types of strength exercises in urban parks and the possible preferences of the people who perform these exercises. In recent years, however, more research is being done about so-called outdoor gyms. Since people use outdoor gyms for gaining strength and improving their fitness, the next paragraph will provide more information about this facility.

§1.5 Outdoor gyms

Outdoor gyms are an increasingly well known type of facilities and especially in many Asian countries outdoor gyms in parks have become very popular. The use of outdoor gyms on other continents is less compared to Asia, but also on other continents the outdoor gyms are becoming increasingly popular (Chow, 2013, p. 2). Despite the increasing number of outdoor gyms internationally there is limited evidence on the impacts of the gyms on PA (Cranney et al., 2016, p 27). Outdoor gyms are examples of recreational facilities, these facilities within parks can contribute to the promotion of healthier communities.

The gyms have the potential to increase park visits/park use and active forms of recreation in parks (Furber, Pomroy, Grego & Taverner-Smith, 2014). Therefore, the instalment of outdoor gyms with a variety of equipment, for instance fitness, strength, balance and flexibility equipment may assist people to achieve the current PA guidelines and increase the participation and maintenance of exercise (Stride et al., 2017, p. 245). Outdoor gyms may increase peoples access to a variety of exercise opportunities that challenge fitness, endurance, strength, balance, flexibility and mobility at no cost (Stride et al., 2017, p. 243), but it is (still) unclear if outdoor gyms are able to attract new park users because mixed results have found (Cranney et al., 2016, p. 31). To give an example, a study of Lindberg and Schipperijn (2015) found that facilities, which especially targeted adults (e.g. an outdoor gym) did not attract people and thus were not used for physical activity. While teenagers and adults were attracted and more physical active at facilities which provided opportunities for playing multiple games (e.g. a football field). The study showed that facilities in parks are not always used as intended.

The use of outdoor gyms is a form of the performance of strength exercises (and other exercises e.g. endurance and balance) and therefore this information comes closest to the aim of this research. Namely, to describe how parks are used for (different/multiple) strenght exercises. However environmental and motivational factors are behaviour specific, that is to say the factors that for example encourage sedentary behaviour, playing sports, walking for recreation, using an outdoor gym and doing strength exercises are different and therefore worthy of study in their own right (Giles-Corti, Timperio. Bull & Pikora, 2005, p. 179).

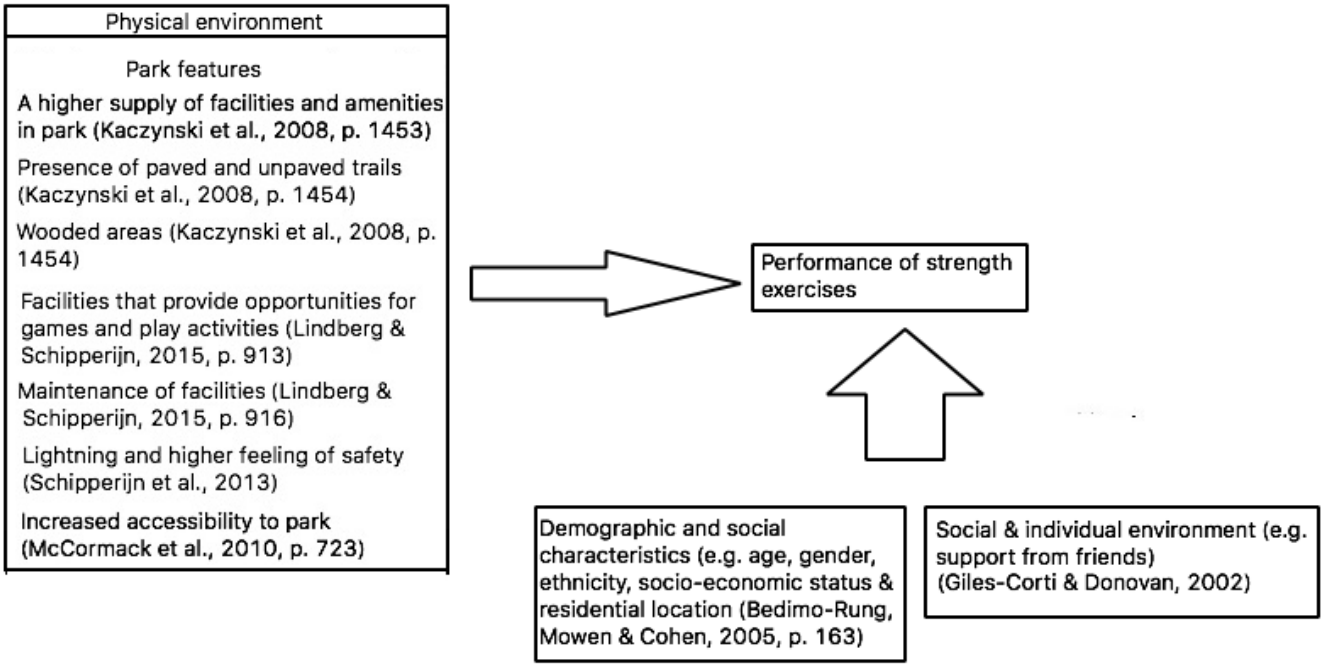
Outdoor gym users often combine the outdoor gym in combination with other forms of PA, like running or walking. This indicates that the use of outdoor gyms represents a supplementary activity to other park activities. People can combine the use of the outdoor gyms with other forms of PA (e.g. jogging) in the park, but it is also possible that people combine the use of the gym with more sedentary activities or even use the gyms as social setting to meet other people (Chow, 2013). The main motives for

people to use outdoor gyms are to: improve their overall fitness and health (physical and mental), to gain strength, to tone their muscles and for social engagement (Chow, 2013; Stride, Cranney, Scott & Hua, 2017). People who perform strength exercises in parks and participate in bootcamp groups also perform exercises which are also meant to strengthen muscle groups and improve endurance. That is why it is expected that people who perform strength exercises in the park can have the same motivations to workout in the park as people who use outdoor gyms. A main enabler for outdoor gym use is that the gyms provide different and multiple types of (free) equipment, most gyms provide equipment for strength and aerobic exercises. There are many types of outdoor gyms, with different types of fitness equipment. Different types of equipment can have different target groups, for example some equipment that is more suitable for older adults (Cranney et al, 2016; Stride et al., 2017). The next paragraph will try to capture the reviewed literature in a so-called conceptual model.

§1.6 Conceptual model

In figure 2 the conceptual model is shown. Because no research has yet been done into strength exercises in the park, the starting point is factors that seemed to have an influence on physical activity in general in the park in previous studies. The conceptual model consists of factors that could influence the performance of strength exercises an overview is given from some research which is done on the associations between PA and urban parks and the characteristics of parks.

Figure 2: Conceptual model



Chapter 2: Methodology

This chapter explains why a qualitative research method was chosen. It is showed how the data is collected, then the concepts of the main question are operationalized. Also the study area will be showed and it will be explained why these parks are chosen and thereafter the characteristics of the respondents will be described.

§2.1 A qualitative methodology

The main question of this research is as follows: ''*How are people using parks for strength exercises and what park features are preferred for the performance of the strength exercises in Utrecht?*'' As becomes clear from this question, people who use the park for performance of strength exercises have an important role in this research. This research is of exploratory nature, because little is known about the performance of different strength exercises in parks and the preferences of people who perform the exercises.

Because of the descriptive and explaining component in the main question and the exploratory nature of the research there is chosen for a qualitative research. The advantage of qualitative research is that it is possible to describe the preferences of people using examples, which is more difficult on the basis of quantitative research (Baarda et al., 2013, pp. 35-36). In addition, it is not known how parks are used for strength exercises and which preferences people have. To gain more insight into park use for strength exercises, it is important to understand why people value or do not value certain park features. Qualitative research is a suitable approach to examine such an issue. On the basis of asking explanatory and descriptive questions it should be possible to illustrate the multiple perspectives of the people who use parks as places to exercise (Boeije, Hox & 't Hart, 2009, pp. 254-255).

To answer the main question, it was decided to do interviews and not to do observations; this had several reasons. Observations are relatively time-consuming. Moreover, preferences or motives of people can not be observed and it is especially frequent behaviour that is observed while other behaviour might be interesting as well (Baarda et al., 2013, pp. 181-182). That is why the main question will be answered by means of semi-structured interviews. With a semi-structured interview the most important questions are fixed on the basis of topics. To conduct the interviews a topic list will be used (see appendix 1). As a result, the topics that are important for answering the sub-questions are discussed in every interview, but it is possible to deviate from the question order if this is more convenient during the interview (Baarda et al., 2013, p. 150). Because the same questions are discussed in each interview, it is possible to compare the interviews with each other. Transcripts are made from the interviews in order to be able to analyse the interviews and to compare them. To carry out the analysis, the transcripts were imported into qualitative data management software NVivo 11. The analysis consists of coding the transcripts and is aimed at answering the sub questions (Baarda et al., 2013, pp. 222-227).

§2.2 Data collection

In order to answer the main question it was necessary to interview people who perform strength exercises in parks. People who participate in bootcamps perform strength exercises in parks, therefore it was chosen to approach people who participate in bootcamps. First, three different bootcamps companies, that organize bootcamps in the selected parks (Griftpark and Park Transwijk, see §2.4), were mailed with the question if there were bootcamp instructors who were willing to cooperate and if it was possible to visit a bootcamp (one of the three has responded).

Also there have been multiple visits to the selected parks to recruit respondents. The only inclusion criteria respondents had to meet was that they were performing strength exercises during the park visit. The moments that the parks were visited depended on the schedules of bootcamp companies which organize bootcamps. Bootcamp companies make training schedules which can be found on their websites. This was done so that during a park visit there would always be people who perform strength exercises.

The park visits consisted of walking around in the park to observe the bootcamp groups and to see if there were other people performing strength exercises besides the bootcamp groups. Often it turned out that besides the bootcamp groups, no other people were performing strength exercises in the park. The bootcamp groups were approached after their training ended. Athletes who indicated a willingness to be interviewed could decide where and how the interview was taken.

Except the direct recruitment of respondents in parks and recruitment via mail, several respondents were also recruited via the already recruited respondents. Two respondents indicated to know other people who also performed strength exercises in parks and who would like to help with the research. In these cases, those people were called to see if they were willing to be interviewed and to make an appointment for the interview. Of all nineteen interviews, two interviews were face-to-face, the other seventeen interviews were by telephone. Because of the unannounced park visit, most respondents indicated to prefer to do the interview by telephone at another time that suited them well. All respondents cooperated voluntarily with the interviews (there was no incentive) and gave permission for the recording of the interview. The interviews were processed anonymously in the results.

§2.3 Operationalization

This paragraph will clarify some of the definitions which are used in the main question (see §2.1) and how the concepts have been operationalized in the interviews. The first definition that need clarification is ''How are people using parks for strength exercises''. In this case ''how'' is made up out of three components. The first component is: when people visit the park, this can be understood as which time of the day people are visiting parks. To make this measurable, in the interview it will literally be asked when are people are going to the park for the performance of strength exercises. The second component is: which parts of the parks are used for strength exercises. This will be operationalized in the interviews by asking where people perform the exercises in the park. Lastly, the third component is: what strength exercises are performed in the park. The third component will be operationalized in the interviews by asking the respondents to describe an average workout and ask more detailed questions about the different exercises people perform.

Another term mentioned in the main question which need explanation is ''strength exercises''. Strength exercises consists of different exercises, but the aim of every exercise has to be to strengthen muscles or bones. So strength exercises include multiple exercises. Examples of strength exercises in the park can be seen at bootcamp groups. A bootcamp is a training whereby multiple cardiovascular, strength, endurance, and flexibility exercises are alternated in a high-intensity (Thompson, 2011, p. 15).

Park features is a also a concept which need more explanation. In this research park features has the same definition as used by Kaczynski et al. (2008). Kaczynski et al. (2008, p. 1452) divide park features into facilities and amenities. Facilities are defined as features of parks that are primary settings for PA. Examples of facilities are paved

trails, unpaved trails, open space, a wooded area, meadow, water area, playground, ball diamond, soccer pitch, tennis court, basketball court. Amenities are features of parks that might support opportunities for PA. Examples of amenities are a drinking fountain, picnic area, restroom, table, bench, trash can, shelter or pavilion, historical or educational feature, landscaping, bike rack, parking lot, rules sign, and having more than one entrance. To investigate if people prefer certain park features for strength exercises, it is asked if there is a certain part in the park which they preferred. If someone stated to prefer a certain part in the park for the performance of the strength exercises, then it could be asked more detailed why that part is preferable or how that part is different from other parts in the park.

The last two concepts of the main question that need further explanation are ''parks'' and ''Utrecht''. Utrecht refers to the city of Utrecht (not the province). ''Parks'' refer to what the municipality of Utrecht labels as so-called city parks. According to the definition of the municipality, city parks are a part of the urban green. Furthermore, city parks are public space and places that offer residents different opportunities for recreation and it should be places where people can meet each other (Sinnema, Tiemersma, Samsen & Hillege, 2007, p. 12). In addition to the concepts in the main question, there are also some other themes in the topic list that will be discussed during the interview.

The topic list starts with some 'general' questions about the respondents. These general questions give some insight in some individual characteristics. Another topic in the interviews is about why people have chosen to perform strength exercises in parks. Although the main question does not focus on personal characteristics or motivation to sport in parks, some context of the respondents is useful to understand the results. Especially because from a social ecological perspective it may be expected that the behaviour of people is the result of the interaction between the physical-, individual- and social environmental (Giles-Corti & Donovan, 2002).

Another theme in the topic list is the visits to other parks. Because it is possible that people use more parks for strength exercises or visited other parks in the past for strength exercises. It was asked if people came in other parks to workout. If so, it could be asked how someone experienced it to do exercises in the one park compared to the other park. The reason to incorporate this question is to find out if someone might have certain preferences for performing strength exercises in terms of park features which can differ between parks.

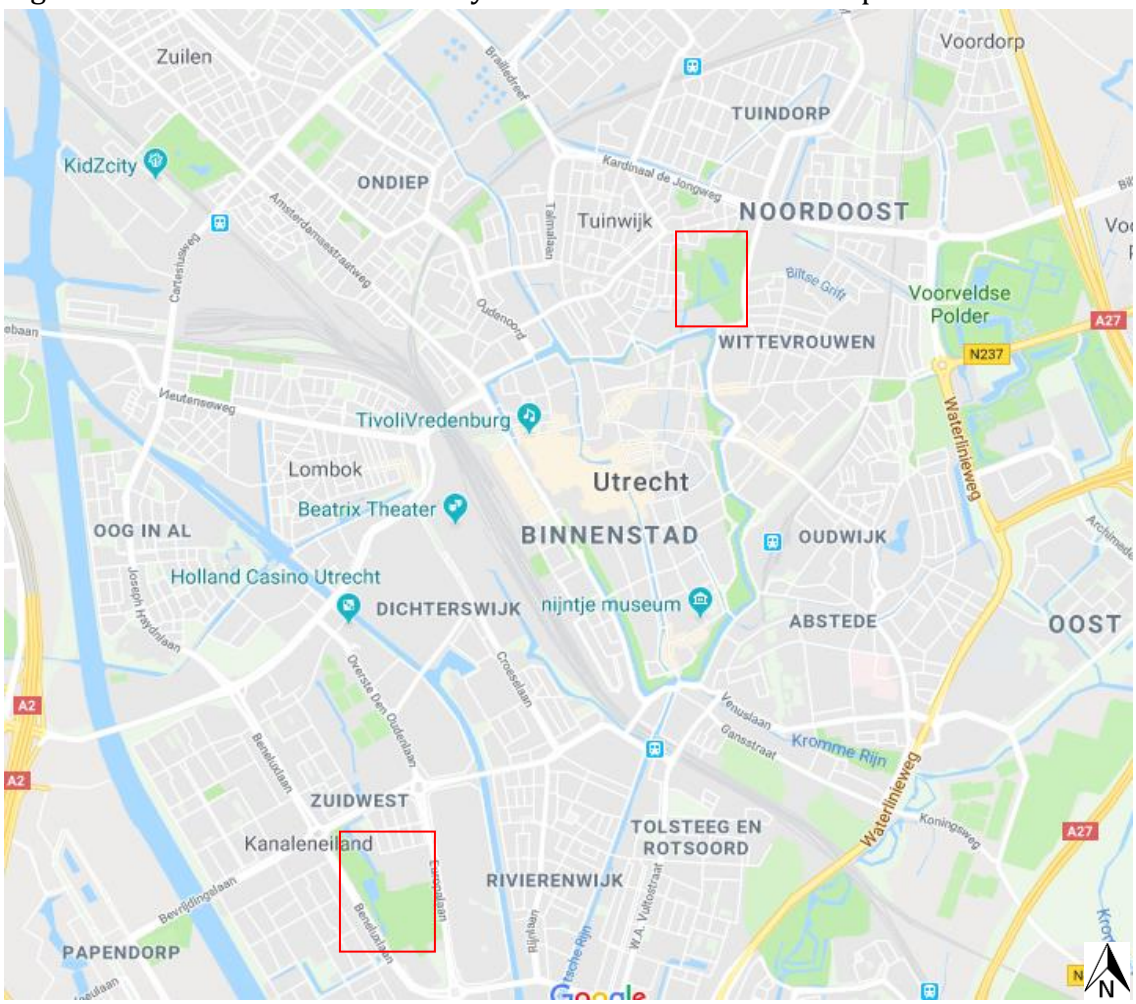
§2.4 Study area

This research is executed in the city of Utrecht (the Netherlands). This city is chosen because this research is executed in the context of the PAUL project. The PAUL project aims to develop an exercise application for smartphones, the application is meant for people who have an insufficient level of PA. Eventually the application should give walking/running routes through parks in the city of Utrecht whereby people get the assignment to perform certain (strength) exercises along their way.

In Utrecht itself, two parks were chosen to investigate specifically. The choice for two parks was made to gain as much information as possible about the performance strength exercises in parks. The parks which were chosen are the *Griftpark* and *Park Transwijk.* The Griftpark is located north of the city centre and Park Transwijk is located south of the city centre (see figure 3). The Griftpark is chosen because it is a popular destination in Utrecht when it comes to the presence of bootcamp groups (and thus among people who perform strength exercises in the park). Many bootcamp groups use

the Griftpark as a place to workout, as becomes clear in a news article about the use of the park (Bos, 2017). The other park which is chosen is Park Transwijk. Park Transwijk has an unique park facility with which it distinguishes itself from other parks in Utrecht, namely the presence of an outdoor gym in the park. A more detailed overview of the parks is given in figure 4 and 5 (see chapter 3).

Figure 3: Overview of the inner city of Utrecht with the chosen parks red outlined



Source: maps.google.com

Characteristics of respondents

A total of 19 interviews were held. The average duration of the recordings of the interviews was 15 and a half minutes. A total of 21 people participated in the interviews. The difference between the number of respondents and the number of interviews is due to the fact that one interview was held with three women at the same time. All respondents perform strength exercises in a park. Table 1 gives an overview of the respondents. A fictitious name has been assigned to each respondent.

All respondents, except for Melissa, are directly involved in a bootcamp group. This implies that Melissa performed strength exercises in a park but is not a member of a bootcamp group. Julia and Jan are bootcamp instructors and the other respondents are members of different bootcamp groups. Bootcamp groups consist of several people who perform different exercises in a park under the guidance of a professional sports instructor. A bootcamp is a combination of strength and cardio training and usually last an hour. Table 1 shows the age of the respondent, the gender, in which park the respondent was recruited and how many hours the respondent sports per week.

Table 1: Overview of the respondents

Interview	Respondent	Age	Gender	Park	Sports (in hours)
1	Naomi	25	F	Griftpark	4
	Cynthia	23	F	Griftpark	4
	Elsa	22	F	Griftpark	3
2	Alissa	30	F	Griftpark	3
3	Julia	31	F	Park Transwijk	15
4	Tom	30	M	Griftpark	6
5	Robbert	43	M	Park Transwijk	2
6	Maria	32	F	Griftpark	4
7	Daphne	25	F	Griftpark	6
8	Angelina	37	F	Park Transwijk	1
9	Romy	27	F	Griftpark	5
10	Melissa	26	F	Park Transwijk	1
11	Iris	31	F	Griftpark	4
12	Isabel	26	F	Griftpark	2
13	Jan	28	M	Park Transwijk	4
14	Linda	29	F	Park Transwijk	3
15	Emma	26	F	Park Transwijk	3
16	Celine	31	F	Park Transwijk	2
17	Lisanne	31	F	Park Transwijk	4
18	Boaz	56	M	Park Transwijk	3
19	Tessa	28	F	Park Transwijk	2

The average age of the respondents is approximately 30 years. In the column about gender, female is abbreviated with ‘F’ and male is abbreviated with ‘M’. Four men and seventeen women participated in the interviews. The column ‘park’ is about in which park the respondent was recruited. As mentioned earlier, some respondents were recruited via other respondents. In those cases, the respondent indicated the park where she mainly performed the exercises. Eight interviews were held with people mainly familiar with the Griftpark, due to the group interview this means that ten respondents were familiar with the Griftpark. Eleven interviews were held with people

mainly familiar with Park Transwijk. However, the fact that people are recruited in a particular park does not necessarily mean that they are not known with other parks. For example, some respondents indicated to do bootcamps in multiple parks. The table also includes the number of hours that people at least sport per week, this gives an indication about sportsmanship of the respondents. The time is a self-reported number by the respondents. The definition of sport was left to the respondents' own interpretations, therefore it is important to realize that sport is not the same as general PA.

Chapter 3: Results

In this chapter the results are discussed on the basis of the data which is collected during the interviews. The results will relate to the sub-questions which are introduced in the introduction and the paragraphs follow the order of the sub-questions. Further, quotes from respondents will be used in this chapter. Quotes can be recognized in the text because they are enclosed in quotation marks and are italicized. To keep readability as good as possible, a blank line is kept free between the text and quotes consisting of 40 words or more. The fictitious names that have been assigned to each respondent and the age of the respondents are also added to the quotes. The first paragraph is about the reasons people have to exercise in a park.

§3.1 Reasons to use parks as places for strength exercises

The interviews showed that people had several reasons to exercise in the park. A majority of the respondents indicated that a bootcamp in the park is a good possibility to get outside and it seems that just being outside is already an important aspect of why people choose to exercise in parks. In fifteen interviews people mentioned that they just liked the fact of being outside. By being outside, people come into contact with the weather elements. Respondents say that exercising outdoors feel more natural than indoors thanks to the fresh air. Some people even had the idea that outside exercising is better for their health than exercising indoors, as becomes clear in the following quote:

''I think I have benefited a lot from the fresh air, anyway. For example, I did not become ill at all, this year. So that is also the reason that I now exercise outside. It is the outside experience compared to the indoor experience. [...] I just notice that I love the open air, it's nice. Even in the winter months. You get such a fresh burst of air.'' (Robbert, 43 yrs. old)

Another reason why people appreciated the open air and being outside is because they spend most of their days indoors. For instance six respondents mentioned that they mostly worked indoors. After spending a whole day inside they found it desirable to spend some time outdoors. As the following woman tells: *''I am at least 8 hours a day inside. So I find it very nice, especially now that the weather is better, to go outside anyway''* (Emma, 26 yrs. old). This quote is a typical example for the people who spent most of their day indoors. Which also emerged in the interviews is that people used to go to a gym, but did not like the gym and found a suitable alternative in a bootcamp. In some respects bootcamps are similar to the gym. Gyms provide people with different types of equipment to train every muscle group, but this is also possible with a bootcamp. Seven respondents told they had experience with gyms but that they preferred bootcamps over gyms. Often a comparison was made between the two. People would state that a bootcamp is better than a gym. This could have multiple reasons. One reason is that people find a gym more unpleasant than a bootcamp because it is indoors. Someone made a statement about why she finds the gym less appealing than a bootcamp: ''*The gym is hot and stuffy''* (Naomi, 25 yrs. old). The open air takes this stuffy feeling away. As another respondent says:

''I just like to combine sports with being outdoors. Not that you're sweating somewhere in a hall, but you're just outside. You have worked all day indoors and then it is just great that you can be outside for a while. I find that relaxing, that you just have the space to run and are not so trapped.'' (Tom, 30 yrs. old)

Another reason people choose to sport in a bootcamp instead of a gym is because bootcamps are under supervision of an instructor. This ensures that people do not have to think about the exercises they are going to do. Moreover, the instructor also monitors whether people perform the exercises properly; an aspect people also value. The supervision is also a reason why people do sport in a bootcamp, but not individually.

In fifteen interviews it was mentioned that people actually did not perform strength exercises in parks individually. It was often said that performing strength exercises individually takes a lot of motivation. A majority of the respondents told that they miss the intrinsic motivation, when there is no one to check whether exercises are actually performed or not, to perform the strength exercises. A factor related to this, is that people like bootcamps because of the presence of other people. People say they have a feeling like, we are in this together, as the following quote shows: *''At least I have the feeling that I do not have to do it all alone and that works for me''* (Celine, 31 yrs. old). This social aspect seems to be pretty important when it comes to the choice for the bootcamp and therefore the performance of strength exercises. As earlier mentioned bootcamp groups exists of multiple people and although people do exercises for themselves, the interviews show that it is different to perform exercises in a group compared to exercising individually. As becomes clear by the following quote:

''I often train with friends or other acquaintances, I like to do it in a kind of group setting. Despite the fact that you do a lot of things individually, I still have the feeling like: we do it all together. Then the hour is over in no time.'' (Romy, 27 yrs. old)

People apparently appreciate to sport in a group. One respondent even indicated that one of the reasons to join the bootcamp was to get to know new people: *''I chose it at the time because I did not know many people in Utrecht, so it was a social aspect''* (Daphne, 25 yrs. old). During a bootcamp people come into contact with other people. There are also exercises that need to be executed in a pair of two people and that is how people come into contact with each other. Altogether, at first sight there seem to be different reasons why people join a bootcamp group and perform (strength) exercises in parks. The following quote actually seems to catch the motives:

''Especially being outside and also because I think bootcamps are a fun way to exercise. You are in a group, someone says what you have to do, you do a bit of strength and a little bit of fitness exercises. That in combination with the outside air.'' (Isabel, 26 yrs. old)

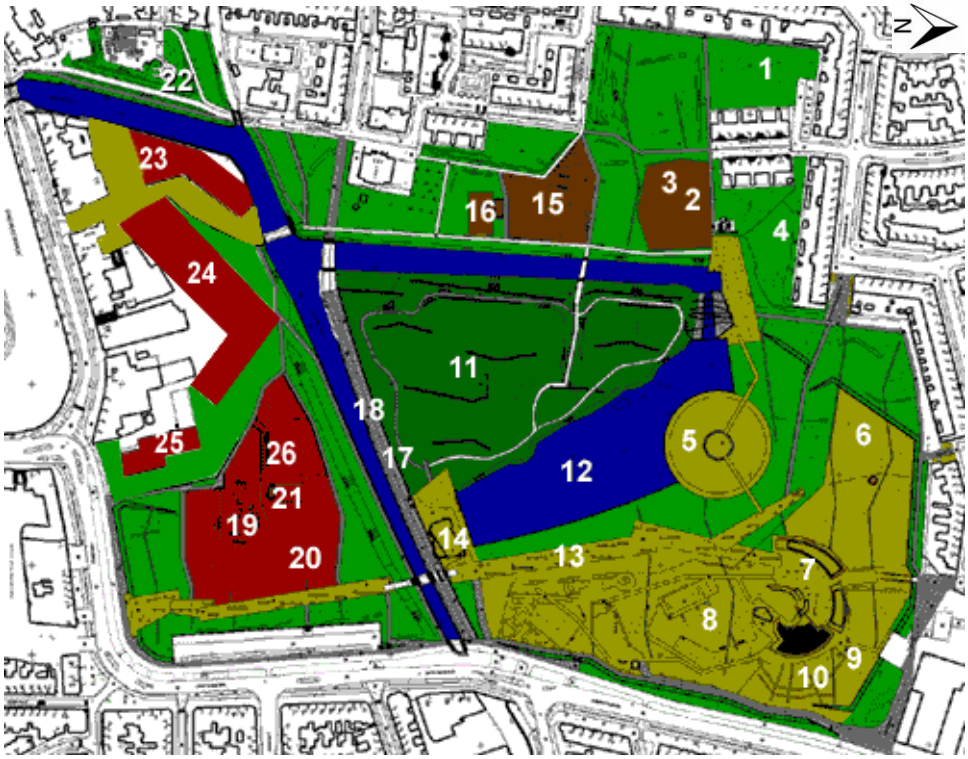
With regard to the moment of park visitation and performance of exercises people seem to look for a bootcamp at a time that is convenient since exercising often has to be combined with other obligations such as work. An example can be read in the following quote: *''Monday is my regular evening for the bootcamp. From my work I go directly to the bootcamp. [...] The time and day on which the bootcamp is given is just nice. So that moment suits me well.''* (Tessa, 28 yrs. old).

Different bootcamp companies/organizations give different trainings at different times of the day and week. Therefore, people can pick the moment which suits them best. People depend on the times the bootcamps are offered, but generally bootcamps are offered throughout the year, seven days a week. Based on the interviews, it appears that especially the evenings are preferred by people, because they have to work during the day. There does not seem to be a certain day of the week that is preferred.

§3.2 The usage of the parks in combination with the exercises and preferences

Participants of bootcamps do not choose the location in the park themselves. Despite this fact, the respondents can tell which parts of the park they use and whether they have preferences in terms of location and park features. This paragraph will show what parts of the Griftpark and Park Transwijk are used by the athletes. Figure 4 and 5 give a more detailed overview and are presented to give an indication of what the parks look like. The scale is not mentioned in figure 4, but a scale is known for figure 5. For an indication of the size of the Griftpark (compared to Park Transwijk), see figure 3.

Figure 4: Overview of the Griftpark

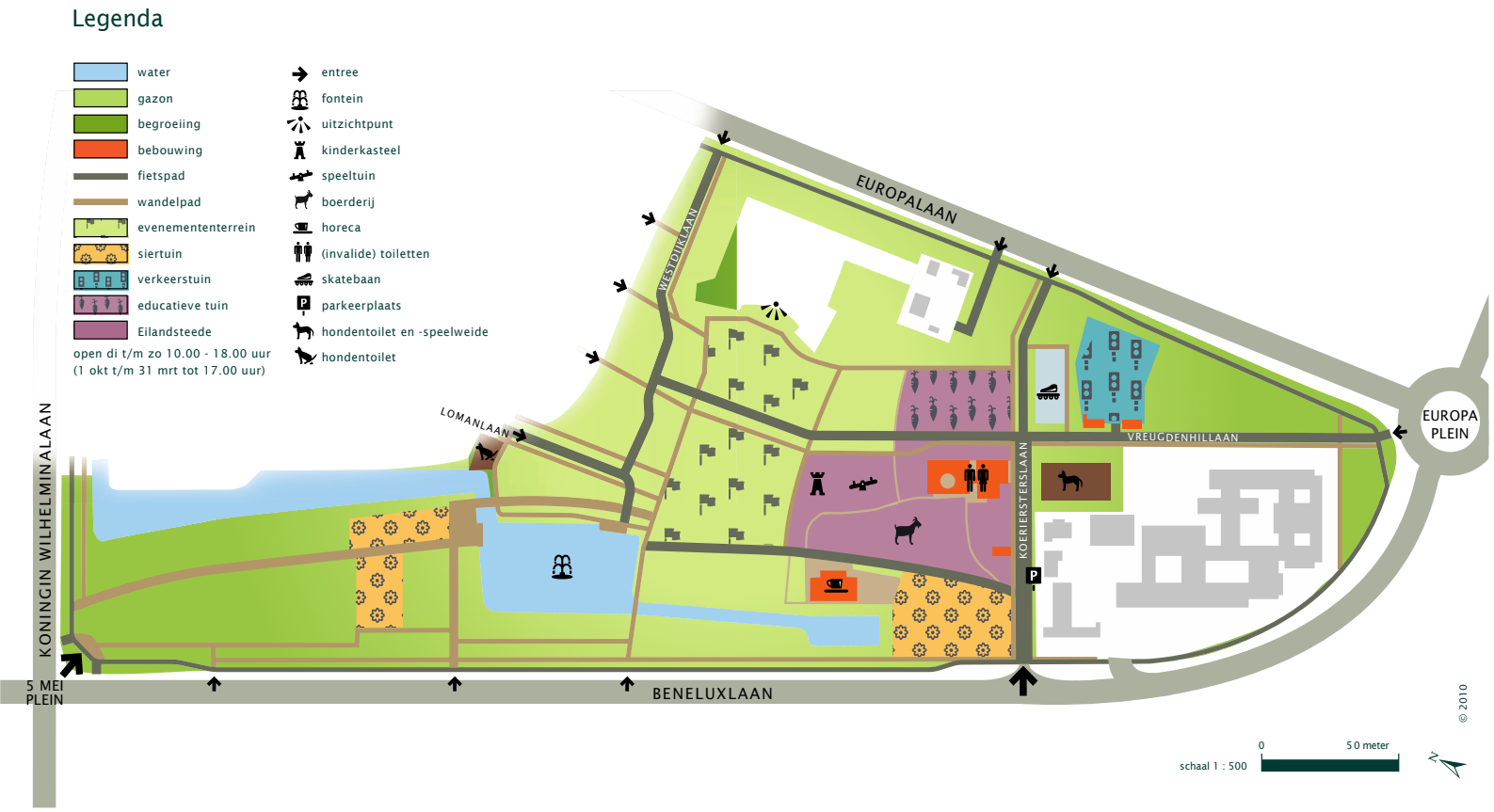


Legend:

1. Tijgerbosje
2. Bloementuin
3. Paddenpoel
4. De Bosjes
5. Uitzichtheuvel De Schaal
6. Bijenstal
7. Griftsteede (Stadsboerderij, Speelhonk, Natuurruimte en bezoekershal)
8. Speeltuin
9. Groenkapel
10. School- en vrijetijdstuinen
11. Natuurkern
12. Grote vijver
13. Rode loper
14. Restaurant Griftpark
15. Hondentrimbaan
16. Jongerenontmoetingsplek
17. Ecomuur
18. Biltse Grift
19. Skatelandschap
20. Evenementenveld
21. Gamebox
22. Torteltuin
23. Hooghiemstraplein
24. 'De Blauwe Grift', parkeergarage en wooneenheden
25. Hostel Wittevrouwen
26. Basketbalveld

Source: www.utrecht.nl

Figure 5: Overview of Park Transwijk



Source: www.utrecht.nl

The interviews showed that there are some different locations in the Griftpark and Park Transwijk which are mainly used to perform strength exercises. In the next sub-paragraphs it will be discussed which parts of the park are used and what kind of exercises people perform. All pictures used in the sub-paragraphs are own material.

§3.2.1 The hills

The most frequently mentioned location which emerged in every interview with respondents who exercise in the Griftpark is the so-called 'hill' or 'mountain' (see figure 6; no. 5 in figure 4).

Figure 6: The 'hill' in the Griftpark (2018)

The hill is a commonly used location for bootcamps, it obviously differs from other locations in the park because of the hilly shape which results in relief (terrain). One of the reasons the location is suitable for bootcamp groups because of the size. A respondent says the following: *''It is a large round circle, so many people can stand on the slope and on top of it''* (Iris, 31 yrs. old). The hill can be used in a versatile way, for different types of exercises. It can be used for warming-up purposes, but the location is also suited for multiple strength exercises.

When it comes to the warming-up people for example run around the hill. What also occurs is that people have to run up and down and there are variations possible. It happens that people have to walk up on all fours, like a tiger crawl. Another variation is that people for instance move up the hill in jump squats or do lunges up hill. Jump squats and lunges are exercises that can also be performed on a flat surface, however a slope makes the execution of the exercises extra hard. The top of the hill is flat, so people are able to stand on the top. The top is circular and is surrounded by a stone edge (see figure 7). The presence of this edge allows people to do some exercises on the top.

Figure 7: The edge on the hill in the Griftpark (2018)

Exercises that people have mentioned are stepping on and of the edge (in repetition) or jump up and down the edge. Here too, exercises can be varied, for example it also happens that people jump up and down the edge in a squat. Further the edge is used to train the arm muscles. The the edge is actually used in the same way how people also use a bench for exercising. For example dips can be done on the edge. In order to be able to carry out dips, you need a height difference between the points where you put your hands and feet. The edge provides this height difference. People also use the edge to do push ups. The advantage of performing push ups on an edge is that it is somewhat easier to perform compared to a push up on a flat surface, as a man says: *''I just do push ups with my hands on the edge of a bench, so that you can continue a little longer''* (Tom, 30 yrs. old). Making an exercise easier to perform can be useful because in that way people for example can sustain the entire (bootcamp)training.

There is also a 'hill' in Park Transwijk (see figure 8; indicated with ''uitzichtpunt'' in figure 5), it is not very visible in the picture but the slope is oblique. Seven respondents of Park Transwijk mentioned the hill as a place where people perform some exercises. From the interviews it turned out that the use of the hill in Park Transwijk is quite similar to the use of the hill in the Griftpark. Respondents indicate

that the hill is among other things used for a warming up, for instance to run up and down, to do lunges or to do squats. On top of the hill there are four benches and a low wall which can be used for strength exercises (see figure 8b). As a woman tells: *''You have a wall, so you can do a lot of exercises on the wall. [...] for example, push ups against the wall or dips''* (Melissa, 26 yrs. old). The wall behind the benches and the wall from figure 8b are also used to do wall sits, which trains the leg muscles. Three respondents, who exercise in Park Transwijk, mentioned they use the immediate vicinity of the hill for strength exercises; around the hill there are trees and vegetation vegetation. One example that a respondent gives is that the distance between trees was used as a yardstick to indicate how long an exercise should be performed. A respondent gives the following example:

''What she does, if you have a path with trees along it. She says: until that tree you will do this spring and at the tree you jump ten times. Then in the next tree you do that exercise and there you jump again ten times. So at every tree you have to do something new. [...] For example, we do ten burpees at a tree, then she says frog jumps to the next tree and then again 10 burpees.'' (Angelina, 37 yrs. old)

Other examples that have been given, include the use of a large branch of a tree to use as weight or a tree stump to jump over. These examples indicate how people use the hill in Park Transwijk, but the location was not a location which was preferred by the respondents of Park Transwijk.

Figure 8: The hill in Park Transwijk (2018)

(a) People running up the hill

(b) Part of the wall on top the hill

§3.2.2 The artificial turf fields

Another location which is often mentioned in the interviews, with people from the Griftpark, is the artificial turf field. All respondents, who mainly visited the Griftpark, mentioned the artificial turf field as a place which is used for exercises (see figure 9; the open spot left from no. 1 in figure 4). This location distinguishes itself from other locations in the park on the basis of the subsurface, it is the only location with artificial turf in the Griftpark.

Figure 9: The artificial turf field (2018)

Half of the respondents from the Griftpark mentioned that they preferred to do exercises at the artificial turf field. The other half of the respondents indicated that they did not have a preference for a specific location in the Griftpark to do exercises. The artificial turf (the sub-soil) seems to be an important characteristic of why this location is appreciated by the respondents, a man says the following about the artificial turf field.

''It is not so wet after it has rained. It dries very quickly and you do not get so wet and cold, that is really a big advantage of the Griftpark. [...] Because when it rains and you have to lie on the ground in the Wilhemina Park, there you have only grass, so you are immediately soaked. And here, after a rain shower, you can do all kinds of exercises on that artificial grass while you are lying down. That is no problem at all. [...] Abdominal exercises are actually always lying down. So we often go to the artificial turf field when the real grass is soggy. But also for push-ups, because you would rather not do that on the real grass when it is soggy. You can, but you prefer not to.'' (Tom, 30 yrs. old)

This quote illustrates that respondents prefer the artificial turf, because they become less wet compared to normal grass after it has rained. So the field is especially preferred with and after rainy weather. That the grass dries more quickly ensures that people have better grip during the performance of the exercises, this is also appreciated by the respondents because this allows them to push off the ground well during an exercise without slipping. But there are more reasons why respondents appreciated the artificial turf compared to other locations. Other reasons respondents mentioned in the interviews are because the field is suitable for many exercises which are performed during a bootcamp, the field is clearly outlined so people know what distance they have to bridge during an exercise and the equal surface is appreciated for the performance of the exercises.

In terms of different exercises, there is much possible on the field. The field offers possibilities for different exercises due to the subsurface. Examples of exercises are lunges, do a plank, push-ups, abdominal exercises, squats, burpees and variations on

these exercises. Yet, the artificial turf is not the only part of the location which is used for exercises. Also the goals are used, what appears from the following quote: ''We had to hang on to a goal and then we had to pull up, that is not possible on the hill'' (Romy, 27 yrs. old). The quote shows that not every type of exercise is possible on every location. For instance, what is not possible on the artificial turf field is a dip because there is no bench or edge which can be used.

Since the artificial turf field is mentioned in all interviews with the respondents from the Griftpark and is a preferred location in the park; it is somewhat remarkable that only one respondent from Park Transwijk has mentioned the artificial turf pitch in Park Transwijk as a place to perform exercises. On the basis of the interviews, it is not possible to give a reason why the artificial turf field in Park Transwijk is mentioned relatively little as a place to perform strength exercises. Perhaps the artificial turf field in Park Transwijk is used more often by other park users. The respondents who used the artificial turf field in the Griftpark mentioned that most of the time the artificial turf field is a relatively uncrowded location compared to other parts of the Griftpark. However, this is only speculation and can not be concluded on the basis of the interviews.

§3.2.3 The outdoor gym

Another location which is mentioned by ten respondents of Park Transwijk is the outdoor gym which is located in the park (see figure 10; located between the 'educatieve tuin and 'evenemententerrein' in figure 5). The outdoor gym is mentioned by ten respondents from Park Transwijk as a place which is used during a training.

Figure 10: The outdoor gym in Park Transwijk (2018)

Not all the equipment of the outdoor gym, however, is used during a training. Respondents indicate this is due to the fact that the most equipment is targeted on people who are over the age of fifty and therefore are not really suitable for a bootcamp training. A respondent describes the equipment as follows: *''They are a bit of those 'just-not' devices, you know. For example, such a cross trainer which only delivers half measures. That is not really encouraging for the endurance''* (Jan, 28 yrs. old). As a result of the target group, respondents do not use most equipment because it is unsuitable or

unchallenging for a training. The equipment which is used are the three 'machines' in the middle: the 'pull-up bar', the 'bridge with stairs' and the 'equal bridge'.

The machine which provide a pull-up bar is used among other things for pull-ups. Respondents also mention an alternative for the pull-ups that is easier to perform, the alternative consists of lying on the ground and then pull up to a low hanging bar. Further the machine is also used for abdominal exercises or use the bars to push off to do push ups. Both 'bridges' are suitable for the performance of dips. In addition, the bridge with stairs is due to the stairs also suitable for donkey kicks, lunges or to do a split squat. Further, the benches around the equipment are also used, e.g. for dips because a dip on a bench is easier to perform compared to a dip on the bridges.

In terms of appreciation, respondents indicated that the presence of the outdoor gym can be useful for certain exercises (e.g. to pull up). What also was mentioned by respondents, is that the space around the outdoor gym is used for exercises. Exercises such as squats and burpees can be done without equipment, so it is not uncommon that during the bootcamp a circuit of different exercises at and around the outdoor gym is performed. The only respondent of the research who actually was not directly involved in a bootcamp mentioned that she usually would go to the outdoor gym unless it is too crowded. But she did not use the equipment of the outdoor gym, she stated the following:

''For example, we do a dip on that bench that is next to the equipment or you put your foot under that bar for an abdominal exercise. But the devices are for 50-plus and those are not really the exercises we want to do.'' (Melissa, 26 yrs. old)

Although she apparently does not really use the outdoor gym, she chooses it as a location to do exercises. Another respondent who actually preferred the outdoor gym as exercise location says why she prefers the outdoor gym compared to other locations in Park Transwijk:

''Maybe also because it is really meant for it. When you get there, people are not like: what are you doing here? No, it is a 'moving garden', so it is logical that we do push ups and other things. While in a skate park people might have something like: you are not even skating and yet you are in the way. That feeling.'' (Angelina, 38 yrs. old)

This quote shows that due to the physical environment of the outdoor gym people see it is meant for strength exercises in contrast to other locations in the park such as a skate track or artificial turf field, which originally have other target groups (respectively skaters and footballers). The 'physical layout' apparently can be a reason why people prefer to exercise at and around the outdoor gym instead of other locations. However, this aspect has only been mentioned by one respondent.

§3.2.4 Asphalt surfaces

The next location of Park Transwijk which is used to perform strength exercises is the skate park (see figure 11; indicated with 'skatebaan' in figure 5). The skate park is mentioned by nine of the respondents from Park Transwijk.

Figure 11: Most of the skate park in Park Transwijk (2018)

What should be mentioned, when the skate park is used for strength exercises this is usually done in a circuit form in which different exercises are alternated. These exercises can be based on body weight, but it also happens that people use attributes (e.g. kettlebells, dumbbells or a tire) that are taken along by the bootcamp instructor. A respondent says about the skate park: *''It is also a nice piece of asphalt with enough space to put all your stuff and even walls to sit against it. So that's why I think that's the best place to do that in the park''* (Emma, 26 yrs. old). So one of the reasons the skate park is used for exercises, is because of the available space to use attributes.

Other exercises such as push ups, jumping jacks, planking and abdominal exercises are performed on the asphalt and also on the surrounding grass. Some respondents also mention that components of the skate park itself can be used for strength exercises. Examples are the 'walls', which for example are used for wall-sits, pistol squats (one-leg squat), dips, push ups, to jump over or it can be used to get on and off and perform a knee-lift. Even a small skate ramp can be used as is apparent from the following quote: *''We also used a skate ramp a few times. Then you go over it with your back and then do sit-ups''* (Robbert, 43 yrs. old). So the skate park in Park Transwijk is actually used in a versatile way when looking at the different exercises which are performed. The skate park in the Griftpark, however, is not mentioned once by the respondents from the Griftpark as a place that is used for exercising. Based on the interviews it not clear why the skate park in the Griftpark is not used in contrast to the skate park in Park Transwijk.

Seven respondents from the Griftpark, however, mention the basketball field as a place that is used for strength exercises. The basketball field also has a surface consisting of asphalt, like the skate park in Park Transwijk (see figure 12; indicated with 26 in figure 4).

Figure 12: The basketball field in the Griftpark (2018)

The basketball field is mainly used for the so-called 'power bootcamp'. This bootcamp is a training with different attributes (e.g. ropes and weights) which are used for the performance of the exercises. This type of training seems to correspond to some extent with the type of training that is carried out in the skate park in Park Transwijk with attributes. A respondents tells: ''It works well with weights, if you can put them down on a hard surface'' (Tom, 30 yrs. old). So based on the interviews in the Griftpark and Park Transwijk asphalt surface seems suitable for workouts with attributes. Besides the powerbootcamp exercises there are (of course) also more 'regular' strength exercises such as burpees, jumping jacks, lunges and abdominal exercises which are performed on the field or the surrounding grass area.

§3.2.5 Remaining locations

This subsection will discuss other locations which were mentioned to a lesser extent compared with the previous mentioned locations. One of these locations is the playground in Park Transwijk, mentioned by two respondents of Park Transwijk. In this playground, specific parts were used for strength exercises, namely the swings and the climbing net (see figure 13; indicated with 'speeltuin' in figure 5).

Figure 13: Parts of the playground in Park Transwijk (2018)

(a) The swing

(b) The climbing net

The swings can be used for abdominal exercises as evidenced by the following quote:

''You have two versions, one is worse than the other. [...] You actually plank on the swing. So your legs behind you, hands on the swing and then you push the swing away and back again. You do that ten times. [...] Then you have the other version, where you also do a plank, but instead of your hands you have your feet on the swing, so it is turned around. Then you pull the swing towards you.'' (Robbert, 43 yrs. old)

The climbing net is just used as it is intended, for climbing. Another location which is mentioned by three respondents from Park Transwijk is the pond in Park Transwijk where there is a small staircase that is used to step on and off during the warming up.

The Griftpark has a location which is quite similar to the basketball field and can be used for strength exercises. This location is only mentioned by one respondent, it is the so-called 'jongerenontmoetingsplek' (see figure 14; indicated with number 16 in figure 4).

Figure 14: The jongerenontmoetingsplek in the Griftpark (2018)

As can be seen in the figure above the surface of the field consists of asphalt. Despite the fact that the jongerenontmoetingsplek is similar in size and surface to the basketball field, it is only mentioned by one respondent. On the basis of these characteristics it can be expected that the field can be used in the same way as the basketball court.

There are also some amenities in the parks that can be used for strength exercises. The first amenity is a bicycle rack. In both parks there are multiple bicycle racks where people can attach their bike to (see figure 15).

Figure 15: Example of some bicycle racks in the Griftpark (2018)

It is mentioned by six respondents from both parks, that the bicycle racks are used for strength exercises. A respondent says: *''We do push-ups and you can also do some kind of pull-ups there. That you hang the other way around and then pull yourself up''* (Alissa, 30 yrs. old). These are also the only two types of exercises which are mentioned in the interviews concerning the bicycle racks. Another 'amenity' of the parks that can be used for strength exercises are fences. One respondent mentioned that she used a fence during a bootcamp for wall-sits. The fences are present in several places in the parks (e.g. around sports field or playground).

Except for the artificial turf field in the Griftpark, the respondents of the Griftpark seemed to have no other clear preference for an other location. The outdoor gym also seemed to be appreciated by some respondents of Park Transwijk because the equipment enabled them to do certain exercises. But based on the interviews, it appears that a large part of the exercises can be performed at various locations in the park. Perhaps this is the most important reason that 8 people indicated they actually do not have a preference to exercise at a certain place in the park. To give some examples what respondents say about a preference for a place: *''I do not really have a preference for a place actually. Everything is handy, you can use everything at a bootcamp''* (Daphne, 25 yrs. old). Another respondent tells: *'That does not really matter to me. I would not go there particular for the park''* (Isabel, 26 yrs. old). Nonetheless, even though some respondents did not have a real preference for a location and even though people in a bootcamp do not choose the locations in the park themselves. There seem to be other park factors that were appreciated by the respondents during the exercises; this will be discussed in the next paragraph.

§3.3 Restrictions and positive factors for doing strength exercises

The previous paragraph showed that a part of the strength exercises can be performed, regardless of the environment. This is convenient, because the bootcamp groups have to share the available space in the park with other people. The choice for a particular location therefore also depends on which places are already used by other people and which places are not used. A respondent tells:

''That depends a little on the training and where there is space. The trainer then takes us to a place and that can be really through the whole park, that can be on the basketball court or the hill or at the football field. So actually everywhere where there is space at that moment, sometimes they also need attributes or not. So that's actually through the whole park.'' (Daphne, 25 yrs. old)

The quote shows that much parts of the park can be used for strength exercises and that the bootcamp groups have to be flexible in location choose. But the quote also shows that other park users can occupy a location, making a place unavailable for exercises. Crowdedness of the park therefore can be a 'restriction' for doing certain strength exercises. This seemed to be particularly problematic in the Griftpark, not so much in Park Transwijk. All respondents of the Griftpark mentioned that the Griftpark can be a crowded place, especially in the summer. It is mentioned that the park can be crowded with 'regular' park users, for instance people who are barbequing or youth that is hanging in the park. But it is also mentioned that it can be quite crowded with other bootcamp groups. For example, the following is said about the Griftpark: *''On Saturday morning the Griftpark looks more like a 'bootcamp factory'. There are like fifteen groups or something and sometimes also very large groups of 20 or 30 people. So that is a bit too*

much people I think'' (Lisanne, 31 yrs. old). All in all, the respondents from the Griftpark are unambigious, it can be crowded in the Griftpark.

There must be some nuance, however, because the opinions of the respondents, are somewhat divided when it comes to if the crowdedness in the Griftpark is inconvenient for the exercises or not. Some respondents mention they do not mind the crowdedness, because they already know it will be crowded in the park and therefore already know what to expect. However, another respondent gives a clear example that people who want to perform exercises can be bothered by the crowdedness:

''It can be quite crowded in the Griftpark and Wilheminapark. You can be hit by a scooter in the Griftpark at night. [...] It is just annoying if you are doing an exercise and then suddenly a scooter comes up on that hill in the Griftpark. [...] I think it is not allowed to ride with a scooter on the hill, so that scared me a little bit at that moment.'' (Julia, 31 yrs. old)

Or another example from a respondent who is bothered by the crowdedness:

''It is not enjoyable to do exercises with an 'audience', who can start with calling things or saying things or just whining. That is just not enjoyable. [...] Especially in the summer, there are all kinds of people in the park and everyone looks at you while you are exercising. Then people say all kinds of things. [...] Things like: nice or I should also workout more. Or something in the direction of: you are exercising while we are drinking beer here. Those kind of things. The bootcamp groups mostly consists of women, so many women with short pants and then everything goes together. [...] There are also people who say: we just want to sit in the park and then all those other people come to exercise here, so go somewhere else with your bootcamps. Stuff like that, some people can get annoyed about that. But I think you have situations like that everywhere.'' (Maria, 32 yrs. old)

As the two examples show, some respondents find it inconvenient for performing the exercises when it gets too crowded in the park. The situation in Park Transwijk is, however, very different compared to the situation in the Griftpark. Six respondents of Park Transwijk even mentioned that Park Transwijk is usually a quiet park, so there is always space to exercise. A respondent from Park Transwijk says the following:

''I think we are lucky, because it is never super crowded with other people who for example are sitting in the park. So you do not have to go through other people who are barbecuing or something like that.'' (Celine, 31 yrs. old)

A majority of the respondents of Park Transwijk indicated that they appreciate the fact that it is usually not so crowded in the Park Transwijk compared to other parks in Utrecht. and that they Because it is not that crowded, respondents indicate that they have enough space and can use different locations to do exercises in the park.

Another positive aspect of Park Transwijk that is mentioned by two respondents is that there is a water tap where people can fill their water bottle. One of the respondents tells: *''What I really like, is that there is a water tap somewhere so you can tap your own water if you need it. So it is nice that you can fill your water bottle''* (Tessa, 28 yrs. old). The respondents find it ''nice'' and ''relaxed'' that there is an opportunity to get water during exercising in the park.

There are two other aspects mentioned about Park Transwijk by a respondent from the Park Transwijk. She mentions: *''There is no toilet in the park. I happen to have*

the key of the toilet at the petting zoo, but if I would have to cycle far to a park and there is no toilet, I would find that annoying. For example, in the Wilhelminapark you do have toilets'' (Julia, 31 yrs. old). The presence of toilets therefore is still a point of improvement for the Park Transwijk compared to other parks in Utrecht that do have toilets. The other aspect mentioned by Julia, is that some parts of Park Transwijk are not well lit in the winter. She says: *''We do not use certain parts in the winter, because it is too dark. There are not everywhere lamp posts in the park and then it is just too dark to run there''*. Although she was the only respondent who mentioned these two factors, it indicates that poor lightning or no access to a toilet potentially could have a restrictive effect for the performance of strength exercises in Park Transwijk. The next chapter will give a conclusion to the research question and it will be discussed how the results are in relation to some of the insights from the theoretical framework.

Chapter 4: Conclusion and discussion

This research has looked at how parks could be used for strength exercises and preferences of the people who perform the exercises in the park. The research question that was formulated is as follows: *How are people using parks for strength exercises and what park features are preferred for the performance of the strength exercises in Utrecht?*
With regard to the new PA guideline from De Gezondheidsraad (2017) this study has shown that parks can be of added value when it comes to achieving the guideline because parks can be used for different strength exercises. From the interviews it emerged that a wide range of strength exercises can be performed in parks. For example, exercises for arm-, leg-, back-, shoulder- and abdominal muscles. The interviews showed that some exercises were performed in different locations of the park. This indicate that it is possible to perform certain strength exercises in parks regardless of the location in the park.

Despite the fact that exercises can be performed in several places, there are a number of locations/park facilities that were mentioned relatively often in the interviews as places to exercise. It seems that for the performance of strength exercises facilities such as sport fields (an artificial turf field and basketball field), a skate track and an outdoor gym are suitable because they are frequently mentioned as places where exercises are performed. This finding does not seem to fully correspond with an earlier finding for 'general' forms of PA in parks. Namely, that facilities such as paved trails, unpaved trails and wooded areas were significant associated with park based PA (Kaczynski et al., 2008). A possible explanation for the difference in the results, is likely because of the difference in forms of PA. Strength exercises are a very specific form of PA, while the term 'park based PA' is more of a catch-all for multiple activities like strolling, jogging, cycling, play basketball etcetera. Every form of PA has typical characteristics in terms of speed, intensity or for instance sensory experiences and therefore a certain environment that is attractive for instance for walking is not equally attractive to people who want to perform strength exercises (Ettema, 2016).
The findings in this study, however, seem to match in a certain extent with the results of Linderg and Schipperijn (2015). Lindberg and Schipperijn (2015) found that people were more physical active at facilities which provided opportunities for multiple games (e.g. a football field) and that facilities are not always used as intended. This study has shown that facilities such as the artificial turf field, playing ground and skate track are used for strength exercises. A skate track is principally meant for skaters to skate on and an artificial turf field is principally meant for people to play football on. That these facilities are being used differently by people, for the performance of strength exercises, show that different park facilities can act as affordances which have the potential to invite for the performance of strength exercises (Withagen et al., 2017). On the other hand, the outdoor gym in Park Transwijk (which invites for PA) shows that people are able to resist these invitations if the invitation is conceived as irrelevant (Withagen et al., 2017). Most of the equipment of the outdoor gym was not used by the respondents because it was not considered to be useful for training. This finding corresponds to the finding of McCormack et al. (2010) and shows that facilities aimed at encouraging PA have to be age-appropriate and well equipped in order to encourage use. In addition to the park features, it also seems that certain amenities, such as benches and bike racks, can be useful for the performance of some strength exercises. Amenities can be of added value for the performance of strength exercises. It seems that park amenities can offer extra support for the performance of strength exercises, because by using the amenities some exercises can be made easier to perform.

When it comes to the preferences of respondents for performing strength exercises, it seems that the sub-soil is important for the preference of certain park features. A surface of artificial turf or asphalt has different characteristics than real grass. Respondents indicated that the different surfaces in some cases (e.g. during/after precipitation) are more preferable for the performance of strength exercising. The outdoor gym was not necessarily mentioned as a park feature that was preferred, but the outdoor gym was mentioned in many interviews as a feature that was used for the performance of exercises. So that confirms that an outdoor gym do provide more opportunities for PA (Cranney et al., 2016). In addition to preferences for certain park features, it seems that the location choice is particular dependent on where it is not crowded in the park. At the same time, people can experience crowdedness as annoying and therefore crowdedness in parks could be a restriction to perform strength exercises.

It can be quite crowded in the Griftpark and the presence of bootcamp groups contribute to the crowdedness. The use of parks by bootcamp groups have not gone unnoticed in the media and some people think that a park is not a suitable place to bootcamp with large numbers of people (''Ongeschreven regels over bootcamps in het park'', 2017). In response to the complaints, bootcamp companies have agreed rules with each other (''Bootcampclubs Utrecht doen muziek en fluitjes in de ban'', 2018). Two of these rules are to 'give' space to other park users and to move to the edge of the park or even leave the park when it is very crowded. This reaction of the bootcamp companies can be seen as a nice gesture to other park users, but also raises a few questions.

For some exercises (e.g. pull-ups, wall-sits and dips) it is necessary that people have access to certain attributes. That is why the physical environment and some park features are important for the performance of strength exercises. Bootcamp groups already were quite creative with the usage of the available space and park features, for instance the use of park features such as a playground, artificial turf field or skate track. This 'creative use' of parks for strength exercises could be an interesting starting point for future research. This research, for example did not pay any attention on how other park users experience the presence of bootcamp groups on features/places which are primarily not intended for bootcamp exercises.

The use of these features for strength exercises is totally legitimate, because parks are public space. Therefore everyone has the right to use the space and features in the park (Van Melik, 2008). But the fact that bootcamp groups have agreed to a rule to leave the park when it is very crowded or to move to an edge, seems to indicate that there are not enough park features (at least in the Griftpark) to provide for the performance of strength exercises when other park users enter the park.

Future research could investigate how the current situation in crowded parks, such as the Griftpark, influence the use of the park for the performance of strength exercises. Are people still able to use the park for strength exercises or is there a 'battle' for public space between the different park users (Van Hecke et al., 2016)? A better understanding of the interaction between parks' social and physical environments and physical activity patterns can be of added value for municipalities and the future planning of parks (Cranney et al, 2016).

The results found in this study correspond with what may be expected on the basis of a social ecological perspective. Namely that behaviour, in this case the performance of strength exercises in parks, is the result of the interaction between the individual-, social- and physical environment (Giles-Corti & Donovan, 2002; Stahl, 2001). Regardless of someone is exercising individually or in a bootcamp, the physical

environment stays the same. So the fact that people do perform strength exercises in a 'bootcamp context' but not individually, shows that the individual- and social environment also influence the performance of strength exercises. All respondents indicated that they had already the personal preference to exercise in the open air. But despite this preference, there was only a small number of people who, besides the bootcamps, also exercised individually in the park. A majority of the respondents indicated they have a lack of sufficient discipline to exercise individually or that they did not enjoy exercising individual. Research showed that one motive for the use of outdoor gyms was to engage in social engagement (Chow, 2013; Stride et al., 2017). It seems that this social aspect also is an important reason why people do perform strength exercises in a bootcamp and not individual. Bootcamps provide in this social aspect.

Fifty-six percent of the Dutch adults do not meet the guideline for PA (Gezondheidsraad, 2017, p. 33). Can parks contribute to an improvement of this percentage? Based on this study parks can offer suitable features which can be used for the performance of different strength exercises. The results showed that especially the artificial turf field seemed to be a preferred location for the performance of multiple exercises. This in itself could be an interesting finding for people who are involved in the development of parks and want to create a physical environment that meets the preferences of people who already use the park for strength exercises. Facilities aimed at improving levels of PA (e.g. outdoor gyms, artificial turf fields) provide people with more opportunities for PA, but it is still unclear whether the facilities are able to attract new park users (Cranney et al., 2016). Adding new artificial turf fields is probably not sufficient to attract the people who do not yet use the park for strengthening exercises. Therefore, instead of immediately doing (expensive) interventions in the physical environment it may be more convenient to choose a different approach.

In order to get a healthier society, it is important that new policies aim to reach the people who do not yet achieve the current guideline of sufficient PA and not use parks yet. Known reasons for people for not engaging in park based activity are, among other things, a lack of money, information and the lack of leisure companions (Bedimo-Rung et al., 2005). In general, parks are free accessible (Veitch et al., 2017) and because of the social aspect bootcamps seem to be a good concept to ensure that parks can actually make a contribution to achieving the guideline for PA of De Gezondheidsraad (Stahl et al., 2001). The only 'problem' is that members of bootcamp groups have to pay a membership fee in order to participate and therefore bootcamps are not accessible for everyone.

So, a suggestion based on this study is that municipalities should take the initiative to introduce people with the possibilities for performing strength exercises in parks in order to increase knowledge about PA among residents. This could be done, for example, by setting up a bootcamp-like program organized by the municipality. The idea of such a program is that people can sign up for a sporting activity where they are accompanied by a professional instructor who introduces the various (strength)exercises that can be performed in parks. This study showed that parks can be used for multiple strength exercises. Therefore, the program must ensure that people get to know what the current possibilities are regarding the performance of strength exercises in parks. Furthermore, the program should also have the intention that people get to know other people with whom they might continue to work out in the future so that people might have a sports buddy. For example, the program could consist of multiple sessions, so that people become familiar with the exercises and get to know other people.

Chapter 5: Reflection

For this research, interviews were chosen as a means to answer the research question. Besides the interviews, there is also observed in the parks (e.g. while recruiting respondents). Although it was not structured observation, it still helped to create first ideas about interview questions and it provided insight in how people use parks. Unfortunately, due to the available time for the research it was not possible to observe structurally in both parks what without doubt would have been of added value to this research. A reason of why the structural observations could have been of added value is because it can be hard for people to describe or remember their behaviour during an interview. During the interviews, sometimes respondents also indicated not to remember everything. Therefore, structural observations could have been a good addition to the interviews.

Furthermore, the respondents, except one, consisted of people who played sports in the park in a 'bootcamp context'. It is possible that this affected the results and that other results were found when more individual (people who not exercise in a bootcamp context) athletes were interviewed. One reason to assume this is because people who are members of a bootcamp club do not have any or only little influence on the exercises they perform during their workouts in the parks. The trainer decides which location(s) of the park are used for the exercises and the trainer also decides which exercises have to be executed during the training. Perhaps that was also a reason why a number of respondents had no clear preference for a location (and thus park features). A comment some respondents made was that they would follow the instructions of the trainer without thinking too much about it. Another reason to assume that other results would have been found with more individual athletes, is because the situation during a bootcamp training or exercising alone are somewhat different. For example, according to a social ecological perspective; PA is a result of the interaction between the individual-, social- and physical environment (Giles-Corti & Donovan, 2002, pp. 1793). But the social environment during a bootcamp is different compared to an individual training. But there is also a more practical reason to assume why result may be different, namely the difference between the space requirement of an individual athlete and an bootcamp group. A bootcamp group consists of multiple people and therefore need more space during exercises.

Due to the available time for the research, a limited number of different bootcamp groups could be approached. Therefore, some respondents were recruited in the same bootcamp group. The validity of the research would probably have been bigger if for example only one respondent had been recruited per bootcamp group. Different bootcamp groups have different trainers and since the trainers determine the locations during the bootcamp there is a chance that more locations in parks could have been mentioned during the interviews. Although the interviews held at first sight seem to give a extensive picture of the use of the parks.

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Appendix 1: Topiclist (in Dutch)

Algemene informatie

- Wat is uw leeftijd?
- In welke wijk woont u?
- Hoe vaak sport u (gemiddeld) per week?
- Welke sporten doet u zoal?
    - Sport u in groepsverband of ook individueel?
- Wanneer komt u in het park om te sporten?
    - Waarom gaat u op die momenten sporten? (Waarom niet op andere momenten?)

Sporten

- Waarom heeft u ervoor gekozen om te sporten in het park?
    - Zijn er bepaalde aspecten van het park die het aantrekkelijk maken om hier te sporten?
    - Hoe vindt u het om te sporten in het park?
    - Zijn er bepaalde aspecten van het park die het aantrekkelijk maken om hier te sporten?

In bootcamp (mensen die de oefeningen niet zelf kiezen):

- Kunt u beschrijven hoe uw gemiddelde work-out in het park eruitziet?
    - Uit wat voor soort oefeningen bestaat de work-out zoal?
    - Hoeveel tijd nemen de oefeningen in beslag?
    - Zijn er bepaalde oefeningen die uw voorkeur hebben boven andere oefeningen? Waarom?
    - Zou u de oefeningen ook individueel uitvoeren?
        - Waar doet u de oefeningen zelf?
    - Waarom voert u de oefeningen niet individueel uit?
- Kunt u de omgeving beschrijven waar u graag kracht oefeningen uit zou voeren?
- Op welke plekken in het park voert u de oefeningen uit?
    - Is er een plek(ken) in het park die uw voorkeur geniet om te sporten? Waarom?
        - Hoe verschillen de verschillende plekken in het park van elkaar om te sporten?
    - Wat voor oefeningen doet u op die specifieke plek(ken)?
- Maakt u tijdens het uitvoeren van oefeningen weleens gebruik van een bankje of andere elementen in het park? (Of bijvoorbeeld een boom)
    - Wat voor oefeningen voert u daar uit?

Individueel:

- Kunt u beschrijven hoe uw gemiddelde work-out in het park eruitziet?
    - Uit wat voor soort oefeningen bestaat de work-out zoal?
    - Hoeveel tijd neemt u voor de oefeningen?
    - Waarom kiest u voor die oefeningen?
- Op welke plekken in het park voert u de oefeningen uit?
    - Waarom kiest u voor die plekken?
- Maakt u tijdens het uitvoeren van oefeningen weleens gebruik van een bankje of andere elementen in het park? (Of bijvoorbeeld een boom)

- Wat voor oefeningen voert u daar uit?

Park

- Sport u weleens in andere parken?
  - Hoe vindt u het om in dit park te sporten in vergelijking met het andere park?

Indien Transwijkpark

- Maakt u weleens gebruik van de fitness apparaten in het park?