POSTER PRESENTATION

How it started

**THEORY**
- Athletes first choice sports might not be the one they are meant to do
- Transferring athletes from donor sports to target sports when it is thought that they have been opportunities
- Motivational issues
- Relative age bias
- Formal vs informal TT

**T-DAYS**
- Athletes get second chances
- Professional coaches
- Costly
- Once a year
- Limited target group
- Anthropometrical bias

**THE APP**
- Convenient measuring
- Area and transportation
- Previous sports
- Possibility for retesting
- Broad target group
- Collected data → recommended sport(s)

**TAKE HOME-M**
- Institutional TT might not be optimal
- Transition takes time
- Motivation is key
- Helps athletes find suitable alternative sports
Athletes aspire to perform to their greatest extent, regardless of the sport or competition level. While some perpetuate sports for fun, others’ aim for the top. Then there is the third category; athletes who no longer find joy in their sport or are unable to keep-up with their chronological peers. Some of these athletes are unknowingly destined for another sport!

**Introduction**

Most, if not all young athletes dream of performing at the highest level, however, while growing up most of them realise that this dream will most likely never become reality. Due to the massive competition level and ever increasing requirements, it is now harder than ever before to reach the top. Some athletes recognize this after no longer being able to compete against their chronological peers they pursue their search for a new sport; this is referred to as talent transfer (TT) [5,6]. TT entails relocating athletes from their initial sport or ‘donor sports’ into ‘target sports’ where it is thought that they have better opportunities to succeed.

It is thought that TT has the possibility of minimizing the relative age effect [1] and maximizing the developmental investment previously made in the donor sports [11]. In that sense the time invested in the “donor sport” does not have to be in vain and has the ability to transfer the achieved movement skills to the target sport.
As of lately, a large number of formal TT institutions have been trying to identify new talents and endorse them to their institutions or clubs. This transpires during specific days at which talents get tested/screened and are given the opportunity to impress the attending coaches, in the Netherlands this occurs during the so called NOC*NSF Talentday. Accompanied by other sports associations, the NOC*NSF wants to screen a large number of talents (12-18 years old) and evaluate their potential of becoming elite athletes [16]. The talents are assigned early in the day to specific sports based on anthropometrics, explosive- and endurance characteristics. The athletes are screened/assessed on beach volleyball, volleyball, rowing, track cycling, athletics and triathlon throughout this day.

Rosanne knew about the talentday, but she thought that it was up to 16 years, while Judith never heard of the Talentday before. However, it does seem interesting to her to see what the results would be of these tests and maybe to try some other sport.

While formal TT trajectories provide a lot of athletes with good opportunities, it is not without limitations, including the NOC*NSF. Formal TT trajectories conveys the impression of providing all athletes with the opportunity of being “seen” or discovered, however, in reality the athletes have to go through a pre-selection procedure before actually being invited to participate at the NOC*NSF Talentday. As a result, the “large” invited group only entails (a maximum of) 300 athletes, taken into consideration that there are 1.2 million people in the Netherlands in the same age category [7,15], out of which 75% perpetuate in sport at least one time a week, the 300 tested individuals are but a drop in the ocean. This means that the sample size of the talent day is, to say the least, limited as well as being costly and based on a handful of specific tests which do not take socio economic status into account which has been known to be of great consequence when evaluating talents and developmental possibilities [4]. Most TT trajectories focus on a few possibilities for the vast amount of athletes to be tested on Talentday. Furthermore, in the UK Sport’s Tall and Talented campaign the focus lies on sports where it is insinuated that taller athletes have unjustified advantages. It is suggested that there is an occurrence of anthropometric bias in most TT trajectories, even though the length of an athlete does not have to be a prerequisite to perform at the highest level [13]. A good example of this is the now retired high jumper Stefan Holm, who with his compromised height of 1.81 m was considered quite (or too) short in the sport. However, his performance was not affected by this “limitation” as he was able to jump higher (2.42 m) than the other elite athletes during his career. In addition to not being more efficient than informal TT [6], TT trajectories are costly as professional guidance and accommodation are typically needed. Moreover, there is a lack of evidence on the cost benefits of formal TT trajectories compared to the “natural” informal TT [1]. We want to establish an alternative and/or complementary tool for athletes that are not able to participate in these formal TT trajectories which also overcomes (most) of the previously mentioned downsides of formal TT trajectories. The primary goal of this interconnected tool is to help the broad public with TT and guide them finding a new sport to enjoy as well as possibly even reach elite level. The choice has been made to not solely focus on talented young athletes, but people from all age groups and any level of performance. The aspiration behind the app is not to solely focus on talents, but rather all athletes with no limitation to certain age groups or competition levels. In addition, there is an increasing rate of drop-outs in the 12-18 age category [7], which is due to dissatisfaction.
athletes, like Judith Getkate. She stopped with Gymnastics when she was 16, because she became less enthusiastic about gymnastics over the years. In that sense, the app would not only increase the opportunity for elite athletes to emerge (in a different sport) but could also stimulate the general public into becoming more active in a new sport.

To gather more information on this topic, we interviewed a transfered athlete and an athlete who recently quit her sport. The questions that have been asked can be found in Appendix A, together with the answers. Parts of the interviews are implemented in this paper.

The DIY (Do It Yourself) Talent Transfer app
We are proud to introduce the ‘DIY (Do It Yourself) Talent Transfer app’. The purpose of this application is to assist athletes in their pursuit of finding a new sport to participate in. With the reason of either getting more physically active, finding an alternative more enjoyable sport or with the intention of reaching an elite level in the ‘target sport’. The app will be accessible to anyone with a smartphone. In the following part we will explain how the app works and what you as the user can do with it.

Figure 1: The main menu of the DIY Talent Transfer app. In the top left corner the measurement part of the test protocol will be opened, here the user will be guided through the different tests that have been designed. In the top right corner the user will get information on the target group(s) of the app and what it means for the user’s experience with the app. In the bottom left corner the area and transport part will be opened where the user can fill in its preferences in traveling and its living area. In the bottom right the questionnaires of the test protocol will be opened.
Convenient measuring

The cornerstone of this app is “convenient measuring”, the app will guide the user through easy-to-do measurements that are not dependent on expensive sport laboratories or attending coaches. The tests are designed to be manageable anywhere and by anyone, for example at home or any other location that suits the users. The consecutive phase is to inform and promote the use of the app in primary and secondary schools the physical education teachers can do the incorporated tests/measurements during his or her classes and the students can subsequently fill in their own test scores into the app. How athletes perform can vary a great deal depending on a variety of different factors. For children this is an even more prone phenomenon, therefore a test result on either pre-selection or talent days does not at all necessarily have to reflect the current capability and even less likely - possible futuristic performance. For this reason there will not be a pre-set amount of trials and as such the users will have the possibility of retesting which can be a useful tool in order to get an accurate result (e.g. avoid circumstance errors such as being sick or nervous) or a fun way of to evaluating one's own progression. Consequently, it will take away the previously mentioned problems with once-off testing that has been found in most formal TT trajectories.

Broad target group

Physical activity has unparalleled positive effects on physical as well as mental health, in fact it is the best known medicine to mankind [8]. However, a study on global physical activity levels [10] showed that 31,1 % of adults worldwide are physically inactive. They do not meet the health guidelines for sufficient exercise on any day of the week. Inactivity has been found to rise with age, participating in sports is thought to enhance mental and physical health as well as independence in higher ages. Therefore we aim to target a broad group. This means that the app can be used at any age and any level of performance. The application will therefore take the athletes age and performance level (as well as preferred performance level) into account when calculating the result. It has been shown that athletes who do early specialization are more likely to obtain injuries, less likely to practice sports for pure joy (inner motivation) as well as good performance as senior athletes [3,9,14]. Due to this the app will be recommended from the age of 12 onwards. The main goal of the app is to help this broad target group to find a new sport to participate in and increase overall physical activity. For very talented athletes however, the app will also be able to help the user find the most suitable sport according to the test results and self-reported preferences and skills. The age of peak performance per sport will also be included in the advice, which is something that can vary enormously amidst sports. As a general trend for both genders, the disciplines involving very specific technical skills have the youngest athletes, these sports include gymnastics and swimming disciplines. On the opposite end, sports requiring higher levels of tactical skills, such as team sports and endurance sports have older athletes [12]. The equations of these trends can be used to help guide event selection for transfer athletes [2]. Rosanne transferred to rowing when she was 21. The age of peak performance in rowing,
is 29, making it more likely to reach the top in this sport than gymnastics, where the age of peak performance is 19.

**Area and transport**

The app will take the user’s living location into consideration with the transfer sports recommendations. The users have the option to choose their preferred transport method(s) which include: walking, biking, public transport or traveling by car along with the maximum time they are willing to travel to their new found sport, the application will then determine sports accommodations in the given area that can be considered when finding new sports for the user.

**Previous sports and preferences**

For the purpose of maximizing the DIY talent transfer app, the users will be asked to fill in their previous “donor” sports. They will inquire what type of sports they have previously participated in and what aspects they liked (and/or disliked) about these sports. This includes such aspects as: individual vs. team sports, ball sports, endurance vs. high intensity sports and so on. These previous sports and preferences will be taken into account when determining the most suitable sport to pursue.

When the users have filled out all questions, the recommended sports will be presented by the app. The capacity of the new sport clubs is also taken into account, meaning that if a sports club has no room for new members, this club will not be recommended. The users can now choose the sport(s) they would like to try out, and have the option to send a direct message to the club/coach. The club can then directly contact the athletes and provide them with information about the club or about the first training.

**Data analysis**

The complete test protocol is presented in Appendix B. The first part of the testing and measuring of the app focuses on anthropometrics. As previously mentioned this will be handled cautiously as there are many examples demonstrating that anthropometrics are not binding for most sports. After the anthropometric body composition measurements have been completed a shuttle run test will be performed to assess aerobic capacity. A 100-meter swimming test will be executed to measure anaerobic capacity. Strength, agility and explosivity will respectively be tested by means of a forward jumping test, agility T-test, a 10 meter and 30 meter dash test. Two questionnaires have been designed to gather information regarding personal preferences, motivation and ambition of the athlete. From the collected information a profile can be sketched with the strengths, weaknesses and preferences of the athlete.
The purpose of the app is to be an complement to the NOC*NSF Talentday, as such the tests are designed to be convenient and conductible at home or nearby, without professional guidance. It has to be noted that the testing validity is lower than that of NOC*NSF Talentday as measuring errors can be made more quickly without professional guidance.

**Take home message**
The DIY app is an excellent complementary step to solving the present talent-wasting and thus providing athletes with an easy second chance. Whether their aim is to reach the top in the new sport become recreational athletes or simply to stay physically active. The app is intended for everyone, where the 12-18 years old age category is designed to counteract the increasing sports participation dropout rates. The app is an extension of the NOC * NSF Talentday with the great advantage that there is a broader group that can be reached within the Netherlands, it is an easy and cheap complement but also alternative to the NOC * NSF Talentday. The tests can be performed anytime, anywhere and information such as motivation and place of residence are included in the analysis. In this way, a successful match can be found and the (talented) athlete can be successfully transferred to a new sport.

**What do the interviewed athletes think of this app. Would it have helped them in choosing a new sport?**

Judith Getkate - ‘Yes, I do think so. Me and my friends chose the gym as it was a rather obvious choice for boys and girls of my age. If we would have used this app it would probably have made us think about more sports with different pros like sporting in a team or a sport with other demands.’

Rosanne Fisscher - ‘Yes! I thought it would be nice to keep exercising fanatically after skating and that is always more fun when you do a sport that you are good at.’
References
16. NOC*NSF. (2020). Talentdag TeamNL. Opgehaald van NOC*NSF: https://nocnsf.nl/talentdag