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The role of WATs in shaping consumers' athletic identity

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Preface

Thank you for taking the time to read my thesis on “*The role of WATs in shaping consumers’ athletic identity*”, as my final assignment to conclude my master’s specialisation in Marketing at Radboud University. This topic resonated with me the moment I began researching it further. It gave me great pleasure to write about such an interesting topic.

I would like to thank everyone who was involved in the making of this thesis. First, I want to thank my supervisor, Olga Tsoumani, for all the help and feedback during this process and for not giving up on me. I would also like to thank my second supervisor, Dr. Paolo Franco, for his feedback and interest in the topic. Furthermore, I want to thank all the participants who shared their time, experiences and opinions with me. It allowed me to gather insights to develop and finish this thesis.

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Abstract

This research investigates how amateur athletes experience wearable activity trackers (WATs) in relation to their athletic identity. Prior research has mainly focused on the functional and health-related aspects of WATs. This study addresses a gap in the literature by exploring their symbolic and emotional meaning to users. The objective was to understand whether and how WATs influence athletic identity. To achieve this, twelve semi-structured interviews were conducted with amateur athletes from various sports. The results showed that, although participants mostly acquired the tracker for functional reasons, their continued use led to symbolic and emotional attachments. For some participants, WATs provided motivation, pride, accountability and a sense of belonging within the fitness community. Long-term athletes with consistent practice viewed WATs more as useful tools than as something defining them. In contrast, athletes newer to consistent practice depended more on the tracker to reinforce their athletic identity. To conclude, WATs play both functional and symbolic roles in athletes' lives. These findings offer theoretical contributions by combining a marketing and identity perspective and practical implications for designing and promoting WATs to athletes.

Keywords: wearable activity trackers, athletic identity, symbolic meaning, amateur athletes, consumer identity

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1. Introduction

In 2024, 43% of the population in the US only made use of mHealth apps, whereas in India, the number of users reached about 70% of the country's population (Stewart, 2024). A common definition of mHealth is the use of mobile technologies for health purposes (Kay et al., 2011). mHealth allows consumers to track their health using mobile apps or wearable activity trackers (WATs) without necessarily requiring the help of a health professional (Holman, 2018). The market of WATs in particular is a growing market that, in 2024, was valued at USD 62.03 billion (Rawal, 2025). The most popular types of WATs are fitness bands and smartwatches, with the most popular brands currently being Apple Watch, Fitbit and Garmin (Walton, 2020). WATs are normally attached to the wrist and connect wirelessly to a computer or smartphone (Shin et al., 2019). They help track a variety of information, such as the number of steps, duration and intensity of physical activity, number of calories burnt, heart rate and sleep (Shin et al., 2019).

The use of WATs appears to bring several benefits to their users, which also drive consumers' reasons to adopt them. The user-friendliness of WATs makes them quite popular, while smartwatches in particular tend to attract further attention from consumers due to regular launches of new and improved smartwatch versions (Company, 2024). At the same time, the use of WATs and mHealth in general is shown to bring several benefits to their users, such as supporting the change of unhealthy behavioural habits, enhancing their feelings of autonomy by offering them control over their exercise patterns, relate with others through self-tracking common activities, and providing them with information for better self-care and treatment (Andersen et al., 2020; Karapanos et al., 2016; Mercer et al., 2016; Simmich et al., 2021). Related to these expected benefits are also consumers' motives for using WATs, which include, amongst others, the motive to improve their physical activity, create healthier routines, obtain a source of encouragement, and make better informed health decisions (Duus et al., 2018; Ferguson et al., 2022).

Among the consumers adopting the use of WATs, three main segments can be identified. The first segment includes those who adopt the use of WATs for general fitness and wellness purposes, followed by consumers who adopt them for self-monitoring a chronic disease, and those who adopt them for athletic purposes. The third segment, that of amateur and professional athletes, is showing a growing interest in the use of WATs (Company, 2024). Among them, athletes in running sports appear to be the ones using WATs more, compared to athletes in other sports (Mopas & Huybregts, 2020; Ouyang et

al., 2021). Recent research shows that WATs are usually used by athletes who practice sports related to running, such as marathons and triathlons (Mopas & Huybregts, 2020; Ouyang et al., 2021). Athletes themselves, as well as sports coaches and sports scientists, have turned to activity tracking through WATs with the ultimate purpose of obtaining a winning edge by better monitoring athletes' health and training load, preventing them from overtraining and informing them when to conduct recovery periods (Halson et al., 2016; Kastoriano & Halkias, 2020).

Although athletes seem to be a growing segment of consumers adopting WATs, the adoption of these mHealth technologies and their influences on athletes have remained largely unaddressed in the marketing field (Rawal, 2025). This is a noteworthy gap, particularly since marketing research shows that the use of products is interconnected with consumers' identities, and consumers who practice- in an amateur or professional way- sports tend to identify strongly as athletes (Belk, 1988; Habermas & Paha, 2002; Kroger & Adair, 2008; Slater et al., 2013). Studies show that the products consumers use and their identities are interconnected, as products may carry symbolic meanings related to one's identity (Badaoui et al., 2018; Harkin & Kuss, 2021; Keller et al., 2010). Existing studies demonstrate that the consumer's identity may influence the choice of products and brands consumers aim to use (Hoyer et al., 2016). For example, people buy Rolls-Royce cars to show their status (Hoyer et al., 2016). Additionally, the use of products themselves has implications for one's identity. A characteristic example of this is the removal of clothes and possessions from prisoners to eradicate their sense of self (Hood, 2011). Although very limited so far, empirical research shows that the use of WATs has implications for how athletes view themselves, as those using WATs were found to hold a stronger athletic identity compared to those not using WATs (Ng & Ryba, 2018).

As the use of WATs increases in popularity among athletes, it is important to understand how athletes view the use of WATs in relation to their athletic identity. The present study aims to address this knowledge gap by answering the research question, "How do athletes view the use of WATs in relation to their athletic identity?". The research question is answered through a qualitative research study with semi-structured interviews. By providing an answer to our research question, this study contributes to mHealth literature by exploring the adoption of WATs of an understudied segment of customers and their psychological consequences (Rawal, 2025). In addition, this study can contribute to the research on consumer identity and the symbolic meaning of products by analysing how the fitness tracker is used, considering the consumer's athletic identity

(Ng & Ryba, 2018). Furthermore, by investigating our research question, it will be possible to better understand product adoption and use, particularly of technological products (Harkin & Kuss, 2021). On a more practical side, this study can help companies by giving marketing insights into WATs by helping them improve their communication and branding strategies to target athletes better.

The remainder of the paper continues with a discussion of the theoretical background of this study, the method, findings, and a discussion of the findings. In the theoretical background, insights from WATs, providing information on the existing literature with general information about the devices themselves, the general population and athletes' experience with them are presented and linked to the objectives of the study. Next, a sub-section focusing on the symbolic meaning of possessions is presented. In the Methods section, the research method, the sample characteristics, research quality, research ethics and the analytical approach are presented in detail. The Findings section includes a summary of the results of the study. Lastly, in the Discussion section, the theoretical and practical implications are explored, as well as the limitations and recommendations for future research.

2. Theoretical background

2.1. Market insights and self-tracking functionalities of WATs

mHealth is the use of mobile technologies that allow consumers to track their health (Kay et al., 2011). In recent years, wearable activity trackers (WATs) have become more popular due to increased health and fitness awareness (Kastoriano & Halkias, 2020; Tang et al., 2020). In 2024, the fitness tracker market was valued at USD 62.03 billion (Rawal, 2025). The most popular wearable activity trackers on the market, at the moment, are Fitbit, Garmin, and Apple Watch (Walton, 2020). Fitbit, one of the leading companies in the fitness trackers market, sold around 9.2 million devices in 2022 (Statista, 2023). Garmin, in 2018, had a portfolio with 40 different devices (Henriksen et al., 2018). Presently, Apple dominates the fitness tracker market, selling millions of units yearly (Laricchia, 2024).

Wearable activity trackers allow users to self-monitor and track health-related information. WATs are usually attached to the wrist and serve as a complement to help with users' health management capabilities. The trackers facilitate the user to gather data and track their daily activities (Shin et al., 2019). They can also present themselves as skin patches, headbands, eyewear to assist sleep and smart garments. They offer specific physical measurements such as heart rate, blood oxygen levels, breathing rates, muscle electrical activity, stress/emotion, cognitive function, movement patterns and sweat analysis (Peake et al., 2018). WATs are usually affordable, considered visually appealing and user-friendly (Ferguson et al., 2022). These devices require few instructions from the user, for example, they can automatically start sleep monitoring and can determine the type of physical activity the user is doing. However, there are situations where the user has to input information, which the tracker then transforms into visualisations (Duus et al., 2018).

2.2. The use of WATs: consumer motives and experiences

There are many reasons to adopt these trackers, such as to increase physical activity, create healthy routines, and improve the person's overall well-being (Duus et al., 2018; Ferguson et al., 2022; Karapanos et al., 2016). A five-factor framework of self-tracking motivations developed by Gimpel et al. (2013) defines a clear overview of the motives that people have to participate in self-tracking. The five groups of motives are self-healing, self-discipline, self-association, self-design and self-entertainment.

Users have reported using WATs primarily for physical rather than daily activities (e.g. sleep monitoring and food intake) (Maher et al., 2017). For people with chronic diseases, fitness trackers have proven to be useful in managing the disease (Mercer et al., 2016; Simmich et al., 2021), mainly because it is able to gather relevant information for the patient's self-care and treatment (Andersen et al., 2020). In addition, the use of WATs has the potential to help with depression and anxiety since it has been proven that physical activity has antidepressant effects (Ferguson et al., 2022; Shin et al., 2019). These motives can be included in self-healing, one of the five self-tracking motivations defined by Gimpel et al. (2013). People are motivated to start self-tracking due to their self-healing possibilities and to improve their health (Gimpel et al., 2013; Karapanos et al., 2016). In addition, users find self-tracking appealing because they feel it improves their self-discipline (Gimpel et al., 2013). WATs encourage changes in behaviour through self-monitoring and goal setting (Ferguson et al., 2022).

Some people have reported using WATs to accompany or support friends or family in their journey to improve themselves (Karapanos et al., 2016). This motive can be incorporated into the self-association factor from Gimpel et al. (2013). This factor consists of self-tracking to connect with others and the prospect of belonging to a community (Gimpel et al., 2013). Lastly, self-design embodies the desire people have to optimise themselves (Gimpel et al., 2013). Consumers have reported using these devices as a source of motivation to change themselves (Karapanos et al., 2016).

There are different experiences users can encounter while using WATs. Users who value real-time feedback mostly view wearable activity trackers as a positive experience (Maher et al., 2017). Some users realised the benefits of using the device when they noticed their lack of physical activity and were provided with a sense of autonomy and empowerment to make changes in their lives previously viewed as difficult (Karapanos et al., 2016). Overall, some users find WATs useful to improve their physical activity (Maher et al., 2017; Tang et al., 2020). These devices also present a motivating aspect to users. People feel more motivated to exercise through the possibility of social interaction, the possibility of data analysis, and the opportunity to improve through constructive feedback (James et al., 2019; Tricás-Vidal et al., 2022). The majority of consumers integrate WATs into their lives without problems by changing either the device or their routines while steering clear of the device's barriers (Lazar et al., 2015).

However, not all experiences are reported to be positive. A few consumers owned and used several devices and perceived some as controlling (Duus et al., 2018). Some

considered these devices high maintenance (Shin et al., 2019). Some felt exposed and confronted with their bad habits, which led to emotional distress (Duus et al., 2018). Several consumers became dependent on the device's ability to capture and analyse their data and stopped listening to their own bodies (Duus et al., 2018). Some even become frustrated if they perform physical activity and forget to record it on the tracker (Duus et al., 2018), and might consider the activity wasted (Duus & Cooray, 2015). These devices can also possibly lead to or worsen eating disorders (Simpson & Mazzeo, 2017).

2.3. The use of WATs: the case of athletes

Athletes are more interested in wearable activity trackers due to their ability to track and retain information about training progress (Company, 2024). These devices help users set goals and self-monitor behaviours (Bardus et al., 2021), offering real-time data which allows athletes to improve training through real-time data (Seçkin et al., 2023; Toner et al., 2023). By monitoring their health and the training load, athletes can optimise their performance while avoiding overtraining (Halson et al., 2016; Kastoriano & Halkias, 2020). Thus, these devices allow athletes to improve faster and more efficiently (Passos et al., 2021). Additionally, WATs support better training strategies by providing supplementary real-time feedback for both athletes and coaches (Seçkin et al., 2023). For these reasons and more, WATs are becoming a great additional tool for athletes (Ng & Ryba, 2018).

Recent research shows that wearable trackers are more common in sports related to running, where many athletes consider them a necessity in their training process (Mopas & Huybregts, 2020; Ouyang et al., 2021; Toner et al., 2023). However, the way these devices are used differs between elite and amateur athletes (Rapp & Tirabeni, 2018; Seçkin et al., 2023). The main motivation for elite athletes to use trackers is to support their sports practice and the comfort of their use, whereas amateur athletes often begin using them out of curiosity (Rapp & Tirabeni, 2018). Most elite athletes still prefer to rely on their body sensations, using them as a complement to their practice (Rapp & Tirabeni, 2018). In contrast, amateur athletes tend to trust the device completely (Duus et al., 2018).

Mopas and Huybregts (2020) concluded that some consumers felt a connection to their devices and considered them an essential part of who they were as athletes. Athletic identity is defined as the degree of personal connection to a sport, measured through the strength and exclusivity to which someone identifies with the athlete role and how much attention is given to the sport in comparison with other activities (Edison et al., 2021).

WATs can enable and enhance different identities for amateur and elite athletes. For an amateur athlete, it can simply be a tool to track consistency or general health, only reinforcing their identity as someone who “runs as a hobby”. In contrast, for an elite athlete, the tracker might be more important and central to enact their identity as a “legitimate” athlete (Chalmers Thomas et al., 2012).

When people assume their role as athletes, they might become more committed and focused on training. A study conducted by Ng and Ryba (2018) on high school athletes demonstrated that athletic identity had a positive association with the usage of fitness trackers. Athletes who used fitness trackers had a higher level of athletic identity in comparison with athletes who did not own one (Ng & Ryba, 2018). To our knowledge, apart from this study, there haven't been others about how the use of WATs is experienced in relation to identity. While prior studies have focused mostly on performance outcomes and device functionalities, this research aims to expand on the WATs and identity literature by exploring athletes' relationships with WATs and the function the device presents to the user. The research investigates how amateur athletes experience their WAT use in relation to their athletic identity and how that identity may, in turn, influence how they engage with the tracker. However, the possession of the tracker can be considered simply special for the athlete because it represents their athletic achievements and does not play a part in their identity (Hoyer et al., 2016).

2.4.Symbolic meaning of possessions

In 1959, Levy believed there was a shift happening in the market, where consumers searched for goods for their symbolic values and not simply for their functional value (Levy, 1959). A possession can present a symbolic value for a consumer when viewed as something important and as a reminder of their identity (Belk, 1988). The products consumers choose to buy can have a personal and social meaning, contributing to their personal identity (Belk, 1988; Levy, 1959). This personal meaning can come from people's cultures or simply from their self-identity (Hoyer et al., 2016). A personal identity consists of what the individual presents of who they are and who they wish to become (Moshman, 2011). Consumers may use products to symbolise themselves or, in other words, express their identity (Cram & Paton, 1993; Keller et al., 2010; Solomon, 1983). Essentially, consumers can use certain products as a symbolic device to represent their identity (Büyükdağ & Kitapci, 2021; McGowan et al., 2017). For example, adolescents' personal identity was found to influence the importance attached to certain

clothing products (Badaoui et al., 2018). Additionally, products can have social meanings for people, for instance, as a means to attest to their social position (Levy, 1959). For example, consumers can purchase Rolls-Royce cars to show their status (Hoyer et al., 2016). Chalmers Thomas et al. (2012) argued that possessions that are used as symbolic resources enable “identity enactment” within a community, where people have varied goals but remain united through their shared activities. WATs helped structure this community, which allowed people to communicate progress, compare results and claim insider status. Therefore, performing as a tool and a badge of commitment. Moreover, people can also purchase items to better express their belonging in a group (Belk, 1988). Wicklund and Gollwitzer (2013) predicted that MBA students who were more insecure about their job were more likely to acquire certain objects to align with the stereotypical businessperson-high status.

Possessions can often carry emotional meaning for people because of affective experiences or personal relevance (Ciarrochi & Forgas, 2000). Possessions that fit with a person’s identity can bring them comfort, nostalgia or pride, which can intensify their identity (Kings et al., 2017). For instance, consumers who use objects daily or personalised objects tend to bond more with those since they are part of their life and daily routine (Mugge et al., 2009; Orth & Van Den Hoven, 2015).

Existing marketing research suggests that the more similar a product’s characteristics are to a consumer’s identity, the more likely consumers are to like and purchase the product – a degree of similarity known as congruity (Hoyer et al., 2016; Puccinelli et al., 2007). Ad appeals alluding to consumers’ social identity have been proven to increase buying decisions (Perez & Steinhart, 2014). In Chalmers Thomas et al. (2012) study, some participants reported that they were more attracted to ads that showcased their identity as runners, since they identified strongly with that identity. When making buying decisions, some will support the group, and others will go against it, that is why it is so important to take into consideration the group the customer identifies with at the time of the purchase (Hoyer et al., 2016). For example, Unilever’s Axe campaigned a deodorant for their target group, which showed an “available man” identity. However, their target group had their “dutiful son” identity activated. Therefore, the consumers’ congruity with the product was low, and the product was not being purchased. When the campaign was changed to accommodate this situation, their sales increased (Champniss et al., 2024). This illustrates how the same message delivered to the same target group can change in the context of a different social identity (Champniss et al., 2024). It also reinforces that

the stronger the connection someone has to a certain identity, the more likely it is for that identity to influence behaviour (Stryker, 1968). Another example can be a new parent who dislikes disposable diapers, regardless of it being in line with their new “parent” identity, because it is inconsistent with their “environmentally conscious” identity. Therefore, marketers must consider that even though a product is consistent with one of the aspects of the consumer’s identity, it can be incompatible with others (Hoyer et al., 2016).

Other studies also support the idea that consumers’ experiences with the use of products may be related to their sense of self (Hood, 2011). For example, researchers have shown that the possession and use of smartphones can be considered extensions of oneself (Harkin & Kuss, 2021). Phones have become more than a tool for communication (Walsh et al., 2008). Nowadays, phones are hyper-personalised and have become something that people use to expose their identities (Fullwood et al., 2017; Harkin & Kuss, 2021). Given the importance of products for consumers’ identity, as follows from existing literature, the present paper will explore how consumers experience the use of a technological product (WATs) in relation to their identity, specifically, how athletes experience fitness trackers concerning their identity. This sub-chapter guides the research to highlight how wearable activity trackers (WATs) can be seen as more than just instruments for their users. They can also carry a symbolic meaning that can help people express or enhance their athletic identity.

3. Methodology

3.1. Qualitative research method

This study aims to explore how athletes experience the use of WATs in relation to their athletic identity. To better understand individuals' experiences, it is recommended to use a qualitative approach (Kalra et al., 2013). Qualitative research is an approach to exploring and understanding the meaning individuals or groups credit to a social or human problem (Creswell, 2018). Even though for qualitative research it is not necessary a formulation of a hypothesis, it is still necessary to have a clear and defined goal (Cropley, 2008). As previously stated, the research focused on answering the question, "How do athletes view the use of WATs in relation to their athletic identity?" To gather the necessary data for this study, in-depth interviews were conducted since it is possible to gather more detailed information in comparison with other data collection methods (Boyce & Neale, 2006). Before the interview, the participants were asked to fill out a Google Form to gather demographic information and analyse their tech savviness. This last topic was relevant to collect information on, as it is important to know how comfortable the participants are with technology, specifically with their wearable activity tracker. The interviews were constructed as semi-structured interviews. This type of interview consists of using pre-made questions but also giving the participant space to add other insights that may arise during the conversation (Creswell, 2018; Myers, 2020). Subsequently, this approach combines structured and unstructured interview techniques, which offers the advantages of both (Myers, 2020). Overall, by choosing this technique, the researcher can have the advantage of consistency across interviews while also allowing the participant to talk freely and mention what he or she considers important (Myers, 2020).

The interview presented questions divided into four groups to identify several aspects. The first group of questions aimed to understand the athletes' profile. More specifically, questions about the sport practised and the significance it has in the athlete's life. These questions were formulated considering the work from Lochbaum et al. (2022). The second group of questions strived to know what fitness tracker is used, the choice behind it and their function (e.g. symbolic, instrumental). The third group of questions strived to understand the participants' experiences with the tracker and the impact its use has on their athletic identity. Some questions were aimed at understanding if the tracker was bought to make the consumer feel more integrated into a group. Others identify if the purchase was made to make them feel more like athletes. Finally, the participants were

asked about the future use of WATs in their athletic careers and in the future of sports. The interview guide can be found in Appendices 1 and 2 with an English and a Portuguese version of the proposed questions (since some participants were Portuguese, it is easier to comprehend the questions if they are in their mother tongue). The interviews were conducted during April and May of 2025, they lasted between 10 to 30 minutes and were recorded. All the interviews were conducted online for logistics reasons, through the MS Teams platform.

3.2. Participant recruitment and sampling

In research of qualitative nature, the sample does not need a formal selection of the population (Flick, 2007). The participants selected for this study needed to meet certain criteria for it to provide valuable insights. Since the goal of this research was to explore the use of wearable activity trackers by athletes, the chosen participants needed to meet the criteria of being an athlete who used a wearable activity tracker. The participants needed to have already some experience with the devices of at least 2 months of use. There were no criteria in regard to what type of sport was practised since the goal of the study was to get an overall idea of athletes' experiences with them and not of a specific sport. To do so, the social network of the researcher was used. First, a small number of acquaintances who fitted the criteria were asked to participate. After the interview, they were asked to recommend potential candidates, leading to a snowball sampling (Parker et al., 2019). According to Kvale and Brinkmann (2009), for qualitative research, it is recommended to conduct between five and twenty-five interviews, remembering the goal of the study (Saunders & Townsend, 2016). As soon as the same topics and themes start appearing in the interviews, it can be concluded that a sufficient sample size has been reached (Boyce & Neale, 2006). Furthermore, the sample size should strive for saturation. This situation occurs when the researcher obtains similar responses and outcomes from different participants (Glaser & Strauss, 2017). After saturation is achieved, the researcher should have a complete outline of the participants' opinions (Saunders et al., 2018). The saturation level is different for every research. In this case, it was reached with 12 interviews.

3.3. Analytical approach

After the data collection was complete, the interviews were transcribed, read, and analysed. The transcription was done using a combination of the standard and intelligent verbatim transcription styles. The transcriptions were made with some light editing in order to still have an accurate transcript. General noises, pauses and repeating words were removed from the transcription without changing the core message of the text (Dresing & Pehl, 2015). The collected data was analysed using a thematic analysis. This type of analysis is used to interpret unstructured data sets, such as audio data gathered from the interviews (Gheyle & Jacobs, 2017). During the analysis, open coding was first used to interpret the data. The transcriptions were read, and segments were chosen to represent a code. Subsequently, axial coding was applied. Similar codes were combined to create a category (Bleijenbergh, 2013). Some codes were discarded for not being relevant enough for the study's core research question. The remaining codes were grouped into five thematic categories.

3.4. Research quality

During a qualitative study, it is important to consider the quality of the research. The key criteria for maintaining quality in research include credibility, transferability, dependability and confirmability (Ahmed, 2024). Credibility through observation and involvement in the study (Ahmed, 2024). This was attained through the researcher's involvement in interviews and research. Transferability through explanations that allow the findings to be used in other studies (Ahmed, 2024). Dependability was ensured through detailed explanations of the decisions made throughout the research. This ensures that the research is authentic since the information is explicit (Hogg & Maclaran, 2008). Finally, confirmability by engaging with colleagues to avoid researcher bias (Ahmed, 2024). This was accomplished through the supervisors' involvement. Taking into consideration these criteria leads to more transparency in the scholarly community (Ahmed, 2024).

3.5. Research ethics

Ethical aspects were taken into consideration to gather data. Firstly, before the interview, participants were informed of the research objectives, their participation without reimbursement and their right to withdraw from the interview at any point in

time. Participants were also informed that, should they decide not to continue with the interview, there would be no consequences (Dicicco-Bloom & Crabtree, 2006). This guaranteed that the participants were fully aware of the purpose of the use of their data and what the study required of them (Fleming & Zegwaard, 2018). The participants actively gave their consent if they wished to participate after reading the above information. This information was delivered using plain language for better understanding among the interviewees through a Google Form, days before the interview. Additionally, before the interview began, participants were asked to give their verbal consent to the participation and recording of the interview.

To guarantee anonymity, the participants were assigned codes (P1, P2, etc.) instead of their actual names (Fleming & Zegwaard, 2018). Any other personal information is also not shared with others beyond the research team and is only used for research purposes. The original audio files and the transcriptions from the interviews will be stored in RIS for students of Radboud University, which is not open to the public. The data will be stored in an anonymised format. The stored data will be automatically deleted after 7 years.

4. Findings

4.1. Demographics

The focus of the study was on athletes who wear wearable activity trackers. Starting with personal connections and later with an open call, it was possible to gather 12 interviews in total. The sample consisted of 6 males and 6 females, ranging from 21 to 54 years old. Their nationality differed between Portuguese, Dutch and German. The majority of participants have a university-level education, with 7 participants holding a complete bachelor's education and 4 a master's degree. The sample consisted of respondents from several professions, including 4 participants who are studying. The most stated profession was teaching, with 2 mentions. The rest differed between senior sports technician, economist, quality assurance specialist, software engineer, designer and people and culture officer. All this information is presented in more detail in Table 1.

Table 1

Demographics of the participants

Participant	Nationality	Age	Sex	Education level (completed)	Profession
P1	Portuguese	54	Male	Master's	Senior Sports Technician
P2	Portuguese	49	Male	Bachelor's	Physical Education Teacher
P3	Portuguese	33	Male	Master's	Physical Education Teacher
P4	Portuguese	51	Male	Bachelor's	Economist
P5	Dutch	24	Female	Bachelor's	Student
P6	Portuguese	24	Female	Master's	Quality assurance specialist
P7	German	24	Female	Bachelor's	Student

P8	Portuguese	21	Female	Secondary school	Student
P9	Portuguese	21	Female	Bachelor's	Student
P10	Portuguese	53	Male	Bachelor's	Designer
P11	German	27	Male	Bachelor's	Software Engineer
P12	Portuguese	27	Female	Master's	People and Culture Officer

All the participants practised sports regularly, and 8 different sports were mentioned. Out of all the participants, 8 practised more than 1 sport. Out of all the sports mentioned, gym was the most practised with 6 references, followed by gymnastics with 4 references and running with 3. BTT, CrossFit and Pilates presented 2 references each. Lastly, cycling and lifting were mentioned 1 time each.

As introduced in previous chapters, the athletes were chosen according to their WAT usage. All participants used a fitness tracker regularly and had been using it for at least 7 months. Apple Watch was the most used tracker, with 6 participants owning one. In second place, Garmin was used by 4 athletes. The remaining fitness trackers were from the brands Samsung and Xiaomi. All this information can be found in greater detail in Table 2 below.

Table 2

Sports practised, WAT model and usage time

Participant	Sport	WAT	Usage Time
P1	• Gymnastics	Apple Watch 10	1 year
P2	• BTT	Garmin Connect	5 years
P3	• Gymnastics • Gym	Apple Watch 7	4 years
P4	• Running • Gymnastics • Gym	Samsung Galaxy Fit 3	1 year
P5	• Running • Gym	Apple Watch SE	7 months
P6	• BTT • Pilates	Smartwatch Garmin vivoactive 5	1 year

P7	<ul style="list-style-type: none"> • Gym 	Apple Watch 9	2 years
P8	<ul style="list-style-type: none"> • CrossFit • Pilates 	Apple Watch SE	4 years
P9	<ul style="list-style-type: none"> • Gym 	Mini Garmin	1 or 2 years
P10	<ul style="list-style-type: none"> • Gymnastics • Cycling 	Garmin solar 6 & GPS Garmin 830	3 years and 12 years
P11	<ul style="list-style-type: none"> • Gym • Lifting 	Apple Watch 10	2 years
P12	<ul style="list-style-type: none"> • Running • Crossfit 	Smartwatch Xiaomi Redmi Watch active 3	5 years

4.2. Tech Savviness

Tech savviness consists of the depth of knowledge and the feeling of ease someone has working with technologies (Dictionary, 2025). To examine this aspect, a series of preliminary questions were administered via a Google Form prior to the interview. First, the participants were questioned about how comfortable they felt using different technologies, namely, mobile phones, computers, televisions and fitness trackers. This was measured through a scale from 1 to 5, where 1 represents “Not comfortable at all” and 5 represents “Very comfortable”. Next, a list of activities was provided, and the participants were asked to select the ones they felt comfortable performing. In general, all the participants demonstrated feeling comfortable with technologies.

4.3. Athlete’s profile

To understand the participants’ athletic profile, several factors were analysed, such as their athletic trajectory, their legitimacy/recognition as athletes and how they integrate sports into their daily life. These are more detailed in the following paragraphs.

Trajectory. To understand one’s profile as an athlete, it is important to consider the evolution of one’s relationship with sports over time. Every participant considered sports a very important part of their life, and they all practised at an amateur level. Each participant reported at least 5 years of engagement with sports activities. Many participants’ athletic trajectories included past and current sports, usually beginning in their childhood. P1 has been doing gymnastics for 45 years, and it’s clear the influence sports have on his life, “...*growing up within a sport has moulded my whole being and my whole way of thinking.*” (P1, Male, 54 years). Regarding participation in competitions, 4 athletes competed in earlier sports, and 5 athletes participated in

competitions in their current sport. Only 6 participants reported winning awards or distinctions, however, most of these achievements (4 out of 6) happened in their former sport.

Sports integration with lifestyle. This code explores how the participants integrate sports into their daily life and routines. Most of them consider it essential and always arrange time to practice during the week. For instance, P12 stated, *“I try to train 6 to 7 times a week. And when I can’t train one day, I try to do two sessions the next.”* (P12, Female, 27 years). P7 went so far as to say, *“I plan my day around the gym”* (P7, Female, 24 years). This demonstrates how sport is not only a priority but also a way to manage time, goals and motivation across the week.

External validation. This subcode investigates how participants perceive their own legitimacy as athletes and how this is influenced by external validation, namely social acknowledgement, competitions or awards. Participation in competitions, mostly in earlier sports, was considered meaningful by some. For example, P10 was national champion of BTT orientation, which contributes to a sense of athletic legitimacy. In contrast, P6 did not sign up for a competition in her sports because she did not believe she was good enough, which shows how doubts about external recognition can influence someone’s self-perception as an athlete.

4.4. Athletic identity

As already mentioned, athletic identity is the connection someone has to a sport through the intensity and exclusivity presented compared to other activities (Edison et al., 2021). Across all participants, even though all practised sports at an amateur level, there was evidence of a strong athletic identity. Several variants were considered to measure the athletic identity of the participants, namely self-perception, identity construction, and emotional connection. The following paragraphs dive deeper into these components.

Self-perception as athlete. This subcode explores how participants see themselves as athletes. Most participants’ self-perception as athletes was generally determined by their engagement in the sport and the effects it has on them. While none of the participants were professional athletes, some described themselves in athletic terms based on their mindset, habits and goals. In addition to self-perception, others’ perception also plays a part in how someone sees themselves. For example, P5 stated, *“I think I see myself as a pretty athletic person and fit person... that’s some words that people would use to describe me as well.”* (P5, Female, 24 years). Even the participants without competitive

aspirations conceive themselves as athletes through commitment and progression. For instance, P5 only sees sports as a hobby and not as something she would engage in competitively. In conclusion, self-perception wasn't about the formal recognition but about the value of sports in the participants' lives.

Identity construction. This subcode focuses on how the participants' athletic identity was built and shaped over time. For most participants, this construction was gradual. Many participants did not initially view themselves as athletes or capable of doing certain sports, but eventually their identity evolved as they became more consistent, leading them to overcome personal barriers. For instance, P12 mentioned how starting CrossFit helped her move on from her sedentary life and change her mindset, "*...it changes the chip a little bit, ...maybe I can do more than I thought I was capable of.*" (P12, Female, 27 years). This can demonstrate how identity construction often results from challenge and resilience. Other participants also considered their athletic identity as something deeply rooted in long-term participation. For example, P3 who has been practising gymnastics for 27 years, reflected that, "*Gymnastics helped me be the person I am today.*" (P3, Male, 33 years), suggesting that prolonged engagement not only shaped physical skills but deeper aspects of self. Overall, the athletic identity of the participants was actively shaped over time and effort. Either developed early in life or later on through personal transformation, the construction of identity was frequently linked to discipline, empowerment and resilience.

Emotional connection to sports. Besides the physical benefits sports present, a lot of participants alluded to the mental and emotional role it also plays. Exercising was often described as an escape from life. For example, P6 stated, "*...when you are young, you don't see sports as something pleasurable, but now it's something I'm always looking forward to do.*" (P6, Female, 24 years). Some considered sports therapeutic, and P10 disclosed, "*It's my psychologist.*" (P10, Male, 53 years). According to the participants' responses, mental well-being and exercising are closely linked.

4.5.WAT use

The use of WATs among the participants varied in terms of device types, usage time, and adoption trajectory. Nevertheless, all included the devices in their routines to track their activity.

Usage motives. The primary motivation for adopting a device was to track performance, or, for some participants, for health reasons. P2 stated: "*...11 years ago I*

had a heart problem... and I felt the need to have a more controlled exercise.” (P2, Male, 49 years). For many participants, it was also used as a source of motivation by meeting their daily goals or seeing their weekly progress. P5 stated: “...it’s just kept me quite motivated, I think... it just keeps me accountable” (P5, Female, 24 years).

Transition from older devices. This transition was common for several reasons, such as device failure or lack of compatibility. For instance, P9 stated, *“I didn’t like it because it didn’t have a lot of features while this one has a lot more.” (P9, Female, 21 years).*

Routine integration. Most participants integrated the devices into their daily routine. P4 shared, *“Yes, I use it every day.” (P4, male, 51 years).* Some experienced breaks in between usage, but eventually returned with new WATs. P7 stated, *“I started to go to the gym I think early as a young kid and there I had the Apple Watch. Then I had like a little break in between where I didn’t do any sports, so I stopped using the watch...” (P7, Female, 24 years).*

Future intent. Most participants manifested intentions to continue using their devices in the future. WATs were considered by many to be essential and beneficial to maintain their training consistency and goals. Most also use it to compare recent achievements to older ones and gather motivation from it. For instance, P7 mentioned, *“So you can see like the history of what you did in the last weeks, months, whatever. And I think it’s a good thing to track these. So, I wouldn’t stop using it.” (P7, Female, 24 years).* Some participants were open to exploring other brands for various reasons. P12 affirmed that even though the current brand of her WAT was Xiaomi, she did not have intentions of including the brand in her search for a new device.

4.6. Instrumental function

Besides the symbolic function possessions can have, they also allow people to engage in desired activities (Cram & Paton, 1993). The participants often praised the WATs’ ability to provide feedback (practical and real-time) and their ability to accumulate data over time, which would help them manage their performance.

Feedback (Practical and real-time). The immediate feedback provided was one of the features deeply appreciated by the participants. Many of the participants used the tracker to monitor heart rate, duration of workouts and calories burned. P9 stated, *“I use it more to see how many calories I burn and how long the workout lasted...” (P9, Female, 21 years).*

Data tracking utility. The ability to accumulate data over time was also a valued feature of WATs. This allowed the participants to check their progress and maintain their consistency. For instance, P11 stated, “...after one week I check how was the week.” (P11, Male, 27 years). Even the participants who did not practice for competitions still consider it useful to have their workouts saved.

Performance management. Many participants used their devices to manage their effort better throughout the workout or to avoid overtraining. P6 explained that when she puts in a lot of effort, she usually feels bad or passes out, so it was important for her to control this, and the device helps her do so. These insights allowed athletes to make an immediate adjustment to their practice, supporting a more mindful approach to training.

4.7. Symbolic meaning

Participants frequently considered the tracker as more than a simple tool, attaching symbolic and emotional value to their use of WATs. These values varied from feelings of empowerment, comfort, motivation and personal validation, while also considering negative emotions.

Meeting athletic performance expectations. Some participants started using their devices to get a sense of control over their routines and progress. This ability to quantify their practice efforts gave participants a feeling of structure. P1 mentioned, “*It makes me feel good because I can see if during the week and during training I’m living up to what I idealised or anticipated*” (P1, Male, 54 years). Similarly, other participants checked their data and stats summaries regularly to monitor their effort, which contributed to maintaining discipline. Additionally, participants felt a sense of capability or accomplishment when they met the tracker’s goals. Even small achievements, such as meeting the daily goals or checking weekly progress, provided positive reinforcement. Many participants viewed these small accomplishments as clear evidence of improvement, even without formal competitions. For example, after checking her weekly summary, P7 felt good and more athletic because she believed she was training more than the average person, “... my phone tells me this summary, ..., so I see I did a lot of sports this week, so I think that’s more than the average person does.” (P7, Female, 24 years). Some participants noted that the data from their tracker reinforced and validated their athletic identity. Although many did not define themselves by their devices, many recognised that maintaining routines or achieving goals confirmed their commitment to

the sport. P9 shared, *“You can see how many workouts you did in that week and I feel more athletic seeing that.”* (P9, Female, 21 years).

Lack of change in identity with WAT use. Despite all the positive associations with wearable activity trackers, some participants demonstrated that WAT use had no impact on how they viewed themselves as athletes. P11 expressed clearly, *“I don’t think there’s a big impact on that... This is not like I’m defining myself over my Apple Watch”* (P11, Male, 27 years). Therefore, some participants only saw the tracker as a tool and not as something defining or enhancing their athletic identity.

Social aspects of WAT use. The social aspects of using WATs while practising sports were often mentioned by participants. These encompassed both digital and in-person components, such as sharing the results through platforms like Strava, discussing results with friends and drawing motivation from it. P12 mentioned, *“... I train with some friends and we always compare each other’s results...”* (P12, Female, 27 years). Many reinforced how sharing the practice results made them feel more connected with other people, for instance P11 stated, *“... it is a way to keep in touch, I would say it’s just like you have something to talk about and you can send little weird messages.”* (P11, Male, 27 years). For some, these platforms gave competitive incentives. P6 shared on Strava and mentioned that she sometimes gets good positions on the rank, which motivates her and gives her a “good feeling”. On this basis, it suggests that WATs become not just trackers but connective tools as well, allowing people to feel part of a broader fitness world.

The engagement with these social aspects differed between participants. Some valued the community part, while others understood that comparing data had limits. P11 emphasised, *“... of course you compare a bit, but at the same time you can’t really compare so I don’t think it has a big influence on how I feel.”* (P11, Male, 27 years).

In conclusion, the data implies that the social aspects of WATs use provided motivations and a sense of belonging through digital and non-digital communities. However, most participants used these features in moderation, valuing sharing and connection more than competition.

Positive emotional meaning. This subcode captures the emotional meaning participants associated with WATs. The devices often presented participants with a feeling of pride, comfort and motivation. P2 has a heart condition and admitted that the tracker made him more trusting and more relaxed to do his workout, demonstrating a feeling of comfort towards the tracker. Many participants shared that their WATs boosted

their motivation to train and helped them feel more disciplined. For example, P6 noted, “...it’s a lot more practical and it’s easier to do sports, to me it gives me more motivation.” (P6, Female, 24 years). Notifications and weekly summaries served as affirmations of progress, which encouraged continued effort and instilled a sense of capability. P8 shared, “... it gives me extra motivation to see the results [in the tracker].” (P8, Female, 21 years)

Negative emotional meaning. Not all experiences were positive; some participants reported subtle negative feelings, particularly around rest days or interruptions of routine due to health reasons. P11, shared his frustration, “I mean, it definitely helps to keep your mood up, but the problem is if you wanna do like a rest day then your goal it doesn’t get fulfilled so, this is kind of an issue.” (P11, Male, 27 years). This feeling came from self-imposed rules that the tracker made more visible.

In conclusion, the symbolic meaning of WAT use varied among the participants, but overall, it was positive. For many, these devices served as a source of capability and accomplishment, identity reinforcement, and motivation.

5. Discussion and conclusion

5.1. Discussion

This study explored athletes' relationship with wearable activity trackers (WATs) and their influence on athletic identity and aimed to answer the research question: "How do athletes view the use of WATs in relation to their athletic identity?". To gather insights, 12 interviews were conducted among amateur athletes. The findings showed that some participants view WATs as something more than a tool and give them symbolic meaning. Since all participants used them every day as a part of their routine, a bond was created between the participants and the device (Mugge et al., 2009; Orth & Van Den Hoven, 2015).

Most participants demonstrated a strong athletic identity, having a long relationship with sports and a good lifestyle integration of it in their lives (Edison et al., 2021). Across different disciplines, participants' athletic identity was expressed through their engagement, dedication and the effects it had on them. For some participants, this identity was reinforced with the use of WATs.

The devices served both instrumental and symbolic functions, from data tracking to motivation. Some participants believed the tracker did not make them feel more like athletes, as they have already felt like legitimate athletes before. However, a lot of participants gathered motivation from their trackers and viewed them as a commitment to their sport. It was noticeable that participants who had been practising sports for a longer period and in a more consistent manner mostly saw the tracker as an instrument and did not give WATs a deep symbolic meaning. In contrast, participants who started consistently working out more recently depended more on the tracker to reinforce their athletic identity. Some participants mentioned the essentiality of WATs to athletes; however, it was mostly in an instrumental way and not in an identity reinforcement way. For instance, some participants viewed a bike or a gym membership as more essential than WATs. This goes in hand with previous research, where participants also considered other objects, in this case, running shoes, more vital (Chalmers Thomas et al., 2012).

The social aspects of using WATs also contributed to the participants' self-perception as athletes. No participant purchased the tracker to express their belonging to a certain group. The majority of the participants purchased them for personal reasons. However, it was mentioned that the tracker made them feel as if they belonged to the group, even though that was not the reason for purchase. In addition, it also helped them feel part of the fitness community. Sharing activity online and in person created a sense of belonging

among the participants. Although not generalised, most participants enjoyed sharing and seeing results from themselves and others.

All participants selected their WATs for their functional value rather than their symbolic value (Levy, 1959). Although not purchased with those intentions, unknowingly, the trackers eventually started having personal meaning to the participants (Belk, 1988). Additionally, some participants gave it an emotional meaning as well, using it as a source of motivation and pride (Kings et al., 2017). All showed intentions to continue using them in the future for several reasons. In short, WATs were mainly viewed as a tool that, for some, also reinforced their athletic identity, but not as something that defines it.

In sum, this research provided insights that wearable activity trackers play different roles in athletes' lives, such as supporting performance and occasionally shaping identity. As consumer technologies continue to evolve and adapt, so will their symbolic relevance for athletes.

5.2. Theoretical contributions

This study contributes to the literature by offering more information related to athletes' experiences with wearable activity trackers (WATs), moving from the habitual focus on functional or health-related outcomes. The consulted research on athletes and WATs was mainly developed in disciplines such as Sports and Medicine. In contrast, this study expands the literature by combining a marketing perspective and consumer identity perspective to provide a more holistic understanding of WATs.

This research demonstrates that WATs can be considered more than simple tracking tools. They also serve as symbolic devices that help amateur athletes to construct, reinforce and express their athletic identity. Although the use of technology in sports is well-documented, its influence on identity has remained underexplored. Thus, this research intends to address this gap by exploring how technological devices can shape self-identity.

By bringing together perspectives from different disciplines such as Sports Science, Marketing and Psychology, this research showcases the value of interdisciplinary approaches to understanding more complex topics. It offers a contribution to the identity work by showing how athletes can use technology as a way of self-expression and motivation. These insights can serve as a starting point for future research on identity and

consumer technology. In conclusion, this research adds to the understanding of WATs not only as fitness tools but also as identity-enhancing technologies.

5.3. Practical implications

Following the theoretical contributions, this study also offers practical implications for marketers, designers, and brand strategists involved in the development and promotion of wearable activity trackers. The findings suggest that WATs are not just instrumental tools but can also be symbolic extensions of users' athletic identity.

Understanding that consumers buy products that align with their self-identity (Clawson et al., 2015; McGowan et al., 2017), allows for the development of personalised marketing campaigns that speak directly to them. For example, instead of the advertisement solely focusing on the technical features of the device, it can also showcase athletes using WATs to overcome difficulties or to support their fitness journey. Advertisements that reference consumers' identities have been proven to increase purchase decisions (Perez & Steinhart, 2014).

WAT designers and developers should consider how the devices can help showcase the user's identity. Kleine et al. (1993) showed a strong relationship between a consumer's social identity and the specific possession that enabled them to symbolise that identity. Therefore, WAT designers and developers can take a step further and allow additional personalisation in the trackers. First, users could have access to an identity-based personalisation that allows them to select their sport and the level practised. This would adjust the feedback language and motivational prompts accordingly. The devices could also celebrate the user's milestones symbolically, for example, instead of just mentioning "You just did 5km in 25 minutes", it could instead show "Good job, you'll soon catch up with Usain Bolt". WATs could also implement emotionally intelligent feedback. For instance, some participants mentioned they felt guilty about their rest days because the goals were not being achieved. The device could acknowledge rest days without penalisations and send them messages reassuring them that rest days are also important (e.g. "Recovery is part of the process"). These personalised features could make users feel more connected to the device, which can increase retention (Mugge et al., 2009).

5.4.Limitations and recommendations for future research

Although this study provided valuable insights into how athletes experience the use of wearable activity trackers, there are still some noted limitations and opportunities for future research.

The sample size, even though appropriate and enough for the research, was composed exclusively of amateur athletes across different sports disciplines. While this provided richer and diverse insights, it limited the ability to generalise findings across specific disciplines and on elite/professional athletes. Elite athletes' relationship with WATs may differ significantly from amateur athletes' experiences. Previous research on the topic has given insights into how the use between these two groups can be different (Rapp & Tirabeni, 2018; Seçkin et al., 2023). Future research could focus on a single sport to allow a better understanding of the sport-specific identity dynamics with WAT use. In addition, future research should consider comparing amateur and elite athletes to explore the differences in the effect of WATs on their athletic identity. For a professional/ elite athlete the tracker might be more central to enhance their athletic identity (Chalmers Thomas et al., 2012).

The devices used by the participants varied. Some were from the same brands; however, the models were always different, which might make them differ in features and usability. Further studies might want to specify the device or focus on one brand (e.g. Apple Watch or Garmin) to explore brand-specific dynamics in greater detail.

It can also be considered that this research had temporal limitations. The participants' experience was examined at only a single point in time. However, identity and technology use evolve. Therefore, a recommendation for the future is to do a longitudinal study or a diary study to capture the relationship between the device and the athlete better.

Another opportunity for future research would be to analyse the congruity between the athletes and the possession or its brand. However, to address this, it would be necessary to further analyse the participants' personality, which is hard to achieve with one interview.

In conclusion, researchers can address all these limitations and view them as opportunities for future research. It is recommended that longitudinal studies be conducted to better examine changes in identity and WAT use over time. To avoid self-report bias, future researchers can combine the self-reported data with objective data (e.g. WAT metrics). In addition, investigating the experiences of elite and amateur athletes might uncover differences in the symbolic meaning of WAT use. Future research can

build upon this research to better understand the relationship between WATs and athletic identity.

6. References

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7. Appendices

Appendix 1: Interview guide (EN)

Thank you in advance for your participation in the research for my master's thesis. Your answers will be used to better understand the relationship between athletes and the use of fitness trackers.

While answering the questions, keep in mind that there are no right or wrong answers. This interview is conducted on a voluntary basis, which means that you can withdraw from the interview at any point during it. There will be no consequences if you choose not to continue. Your participation is not accompanied by any means of compensation. Your answers will be confidential, and your name will be changed to ensure anonymity. The original audio files and the transcriptions from this interview will be stored in RIS for students of Radboud University, which is not open to the public. The data will be stored in an anonymised format. The data stored will be automatically deleted after 7 years.

The interview will be recorded and take approximately 30 to 45 minutes.

Do you have any questions about the points just mentioned?

Do you agree to participate?

[if yes] Do you agree with recording the interview?

Part 1. Questions about the sport
<i>First, let's discuss about your sport...</i>
1) What sport do you practice?
2) When did you start practising [sport]?
3) Why did you choose [sport]?
4) Do you practice [sport] in a professional or amateur level?
5) How many hours do you dedicate to [sport] weekly?
6) Have you participated in any competitions in [sport]? [If they have, ask whether they have won a prize/distinction]
7) Do you train alone or with other people?
8) How would you describe the role of [sport] in your life?
9) What role does [sport] play in how you view and think of yourself?

Part 2. Questions about the use of the activity tracker
10) Which activity tracker do you currently use?
11) Why did you start using [activity tracker]?
12) Why did you choose for [activity tracker] over others?
13) How long have you been using [activity tracker]?
14) Have you used other tools (digital or non-digital) for tracking your activity in the past? 14a) If other tools have been used: which ones and why? 14b) If s/he continues using other tools: how do these work together with the [activity tracker]? 14c) If s/he has stopped using other tools: why?
15) How often do you use [activity tracker's name]?
16) How exactly do you use [activity tracker's name] for your sport? What do you do with it?
Part 3: Questions about the effects of activity tracker use on identity
17) How does the use of [activity tracker] influence your practicing of [sport]?
18) How does the use of [activity tracker] make you feel as an athlete of [sport]? 18a) Why do you think that using [activity tracker] makes you feel this way? 18b) Have your feelings as an athlete of [sport] changed after you started using [activity tracker]? 18c) [If only positive/negative feelings are mentioned, ask for the opposite]
19) Do other athletes in your sport, who train with you, use an activity tracker? 19a) If they do: what do you think of your fellow athletes use of activity trackers? 19b) Do you share activity data gathered from your tracker with those other athletes? 19c) If yes: why? How does that make you feel as an athlete of [sport]? 19d) If not: why?
20) Will you continue using [activity tracker] in the near future? 20a) If yes: Why? 20b) If yes: Would you consider upgrading it? 20c) If not: Why?
21) How do you view the use of activity trackers by athletes in your sport in the future?
22) How do you view the use of activity trackers by athletes in general (in other sports too) in the future?

23) What risks do you think that athletes in general may face by using activity trackers?
24) What advice would you give to new athletes who may consider using an activity tracker for their sport training?
Part 4: Final questions
25) Is there anything you would like to add?
26) How did you feel during this interview?

Appendix 2: Interview guide (PT)

Obrigada, desde já, por ter aceitado participar na pesquisa para a minha tese de mestrado. As suas respostas vão ser usadas para procurar entender melhor a relação dos atletas com *fitness trackers*.

Não existem respostas certas ou erradas, procuramos apenas conhecer a sua opinião sobre o tópico. A participação nesta entrevista é voluntária, logo, caso pretenda, pode retirar-se do processo a qualquer momento sem qualquer tipo de consequência. A sua participação não é objeto de qualquer tipo de compensação monetária.

As suas respostas são confidenciais e o seu nome será alterado para garantir o anonimato. A informação obtida nesta entrevista será apenas usada na minha tese de mestrado e será guardada numa base de dados da Radboud University, sem acesso pelo público. Os dados da entrevista vão ser guardados num formato anónimo. A informação será automaticamente apagada após 7 anos.

A entrevista será gravada e terá uma duração prevista de 30 a 45 minutos.

Tem alguma pergunta em relação a estas informações?

Concorda em participar?

(Se sim) Concorda com a gravação da entrevista?

Parte 1. Questões sobre o desporto
<i>Primeiro, vamos falar sobre o seu desporto</i>
1) Que desporto pratica?
2) Quando começou a prática desse [desporto]?
3) Porque escolheu praticar este [desporto]?
4) Pratica este [desporto] a nível profissional ou amador?
5) Quantas horas dedica a este [desporto] semanalmente?
6) Já participou em competições neste [desporto]?
[Se sim, perguntar se ganharam algum prémio/distinção]
7) Treina sozinho ou acompanhado?
8) Como descreveria o papel deste [desporto] na sua vida?
9) Este desporto influencia como se vê e pensa de si próprio?
Parte 2. Questões sobre o uso do <i>fitness tracker</i>
10) Que <i>fitness tracker</i> utiliza?

11) Por que razão o adquiriu?
12) Porque escolheu este em específico?
13) Há quanto tempo utiliza o [<i>activity tracker</i>]?
14) Já utilizou outros dispositivos (digital ou não) para fazer o tracking da atividade? 14a) Se outros dispositivos tiverem sido utilizados: quais e porquê? 14b) Se ainda utiliza outros dispositivos: como é que utiliza em conjunto com o [<i>activity tracker</i>]? 14c) Se parou de utilizar outros dispositivos: porquê?
15) Usa-o regularmente?
16) Como é que utiliza o dispositivo para o seu desporto? Quais as finalidades?
Parte 3: Questões sobre o efeito do uso do <i>fitness tracker</i> na identidade
17) Como é que o uso do [<i>activity tracker</i>] influencia a prática do [desporto]?
18) Como é que o uso do [<i>activity tracker</i>] o faz sentir como atleta do [desporto]? 18a) Porque é que acha que o uso do [<i>activity tracker</i>] o faz sentir assim? 18b) Os seus sentimentos enquanto atleta do [desporto] mudaram depois de ter começado a utilizar [<i>activity tracker</i>]? 18c) [Se apenas sentimentos positivos/negativos forem mencionados, perguntar pelo oposto]
17) As pessoas que treinam consigo também possuem e utilizam <i>fitness trackers</i> ? 17a) Se sim: O que pensa do uso de <i>fitness trackers</i> pelos seus colegas? 17b) Costuma partilhar os resultados do seu treino com outras pessoas? 17c) Se sim: porquê? Como é que isso o faz sentir como atleta do [desporto]? 17d) Se não: porquê?
18) Vai continuar a utilizar o dispositivo num futuro próximo? 18a) Se sim: Porquê? 18b) Se sim: Consideraria fazer um upgrade ao dispositivo? 18c) Se não: Porquê?
19) Como vê a utilização de <i>fitness trackers</i> pelos atletas do seu desporto no futuro?
20) Como vê a utilização de <i>fitness trackers</i> por atletas em geral (noutros desportos também) no futuro?
21) Que riscos pensa que os atletas em geral podem correr com a utilização de <i>fitness trackers</i> ?
22) Que conselhos daria a novos atletas que considerem a possibilidade de utilizar um <i>fitness tracker</i> para os seus treinos?
Parte 4: Questões finais

23) Alguma coisa que gostaria de acrescentar?

24) Como se sentiu durante a entrevista?
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Appendix 3: Tech Savviness

Tech savviness



In this section you will share some information about how comfortable you are with technology.

Being a tech-savvy person means that you have a depth of knowledge and feel at ease working with technologies.

How comfortable are you with a mobile phone? *

	1	2	3	4	5	
Not comfortable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very comfortable

How comfortable are you with a computer? *

	1	2	3	4	5	
Not comfortable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very comfortable

How comfortable are you with a television? *

	1	2	3	4	5	
Not comfortable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very comfortable

How comfortable are you with a fitness tracker? *

	1	2	3	4	5	
Not comfortable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very comfortable

Which of the following activities do you feel comfortable doing? *

- Use formulas in Excel
- Install an app on a smartphone
- Write a program in an advanced language (e.g. Java, Python)
- Setting up a wireless router
- Installing a printer on your computer
- Creating a PowerPoint presentation
- Connecting a streaming device to a TV
- None of these

Appendix 4: Exemplary quotes

Category	Explanation	Example quote
Athlete's profile	The participants' sport history	
Trajectory	The evolution of one's relationship with sports over time	<i>"...growing up within a sport has moulded my whole being and my whole way of thinking" (P1, Male, 54 years)</i>
Sports integration with lifestyle	How the participant integrates sports in their life	<i>"...I organize many times my week thinking okay this week I have time to train these days..." (P2, Male, 49 years)</i>
External validation	How participants perceive their own legitimacy as athletes and how this is influenced by external validation: social acknowledgement, competitions or awards	<i>"I have won awards and distinctions." (P1, Male, 54 years)</i> <i>"...for BTT, I was supposed to sign up for a competition last year, but then at the last minute I thought I wasn't good enough to participate" (P6, Female, 24 years)</i>
Athletic Identity	How participants perceive themselves in relation to being an athlete	
Self-perception as athlete	Whether and how the participant sees themselves as an athlete	<i>"I think I see myself as a pretty athletic person and fit person." (P5, Female, 24 years)</i> <i>"It's just a hobby for me." (P5, Female, 24 years)</i>
Identity construction	How the participants' athletic identity is built or shaped through time	<i>"... I used to be a sedentary person... ..it changes the chip a little bit, ...maybe I can do more than I thought I was capable of." (P12, Female, 27 years)</i>
Emotional connection to sports	Psychological or emotional ties to their athletic life	<i>"It's my psychologist." (P10, Male, 53 years)</i>
WAT use	Reasons to use, changes in devices and future use intentions	

Usage motives	Reasons for starting or continuing use	<i>“First of all I use it to monitor my workout, the intensity of it, I also see my heart rate...” (P3, Male, 33 years)</i>
Transition from older devices	Changing devices	<i>“I didn’t like that very much (the old device) because it didn’t have that many functionalities...” (P9, Female, 21 years)</i>
Routine integration	How the device became part of the participant’s routine	<i>“Yes, I use it every day.” (P4, male, 51 years)</i>
Future intent	Future plans related to the tracker	<i>“I’m used to it and it’s part of my routine... So, I intend to keep using it.” (P8, Female, 21 years)</i> <i>“Yes, I am doing my research to invest in something good and advantageous to my practice...in fact, Xiaomi is not included in the brands I am looking at right now.” (P12, Female, 27 years)</i>
Instrumental function	Practical and technical roles that the WATs play	
Feedback (practical and real time)	Input provided by the WAT from the workout	<i>“I can see through the heart rate if I am doing too much effort...” (P2, Male, 49 years)</i>
Data tracking utility	How useful past data has been to monitor progress or to compare performance	<i>“...after one week I check like how was the week.” (P11, Male, 27 years)</i>
Performance management	Using the device to modify the training intensity	<i>“...sometimes if it is a big effort, I end up feeling bad and passing out and the watch helps me control that a bit.” (P6, Female, 24 years)</i>
Symbolic meaning	The emotional, motivational or identity significance the WAT carries	
Meeting athletic performance expectations	Usage of WATs to get a sense of control over their routines and progress and feeling capable or proud	<i>“I can have more control over my type of training, my goals and my results.” (P3, Male, 33 years).</i>

	due to meeting goals, improving performance, or maintaining consistency	
Lack of change in identity	Usage of the WAT did not add anything to the participant's athletic identity	<i>"No [I didn't feel more like an athlete], the performance might have improved a bit." (P3, Male, 33 years)</i>
Social aspects of WAT use	Community dimensions of sports and WAT use	<p><i>"I think it made me feel more like I'm in the kind of fitness and health world" (P5, Female, 24 years)</i></p> <p><i>"I think it makes me feel a little bit more athletic because everyone I saw practicing sports seriously had one watch." (P8, Female, 21 years)</i></p> <p><i>"...sometimes you get a 6th place in the women's ranking and the feeling it gives is like look I'm an amateur but... there's a lot of segments where I am the first in the ranking" (P6, Female, 24 years)</i></p>
Positive emotional meaning	Affective feelings tied to WAT use like pride, comfort and motivation	<p><i>"... it gives me extra motivation to see the results [in the tracker]." (P8, Female, 21 years)</i></p> <p><i>"It [the tracker] makes me feel more relaxed and confident about the effort I make" (P2, Male, 49 years)</i></p>
Negative emotional meaning	Negative feelings when the goals are completed or from forgetting the device	<i>"...the battery is very low so I can't track my training. So, then I'm angry" (P7, Female, 24 years)</i>