

ALINA WUNDSAM
2023

APPENDIX
RE-DESIGNING THE INTERACTION OF ROWERS
WITH THEIR MENSTRUAL CYCLE

TABLE OF CONTENT

01 ADMINISTRATIVE

- 1.1 Project Brief
- 1.2 Midterm Evaluation

02 INTERVIEWS

- 2.1 Question list
- 2.2 Consent forms
- 2.3 Statement cards

03 SURVEY

- 3.1 Questions
- 3.2 Consent forms
- 3.3 Invitation

04 RESEARCH RESULTS ON SYMPTOMS, OPPORTUNITIES AND CONSTRAINTS

- 4.1 Survey results
- 4.2 Interview results

05 RESEARCH RESULTS ON CONTEXT

- 5.1 Coaches
- 5.2 Training plan
- 5.3 Tracking

06 1&2 WORKSHOPS

- 6.1 Agenda
- 6.2 Material
- 6.3 Outcome
- 6.4 Reflection

07 LOGBOOK DATA SESSIONS

- 7.1 Visualisations
- 7.2 Materials

08 TRACKING EXPLORATION SESSION

09 OTHER CONCEPTS

10 WORKSHOP 3

11 FINAL CONCEPT

1.1 PROJECT BRIEF

DESIGN FOR OUR future

6507

TU Delft

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !

family name	<u>Wundsam</u>	Your master programme (only select the options that apply to you):
initials	<u>A.W.</u> given name <u>Alina</u>	IDE master(s): <input type="radio"/> IPD <input checked="" type="radio"/> DII <input type="radio"/> SPD
student number	<u>5507561</u>	2 nd non-IDE master: _____
street & no.	_____	individual programme: _____ (give date of approval)
zipcode & city	_____	honours programme: <input type="radio"/> Honours Programme Master
country	_____	specialisation / annotation: <input type="radio"/> Medisign
phone	_____	<input type="radio"/> Tech. in Sustainable Design
email	_____	<input type="radio"/> Entrepreneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair	<u>Cila, N.</u>	dept. / section: <u>HCD</u>
** mentor	<u>Gomez Ortega, A.</u>	dept. / section: <u>HCI</u>
2 nd mentor	_____	_____
organisation:	_____	_____
city:	_____	country: <u>Netherlands</u>
comments (optional)	_____	_____

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v.

! Second mentor only applies in case the assignment is hosted by an external organisation.

! Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair _____ date 01 - 05 - 2023 signature *Nichh*

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 30 EC **YES** all 1st year master courses passed

Of which, taking the conditional requirements into account, can be part of the exam programme 30 EC **NO** missing 1st year master courses are:

List of electives obtained before the third semester without approval of the BoE

name Robin den Braber date 17 - 05 - 2023 signature *RdB*

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

Content: **APPROVED** **NOT APPROVED**

Procedure: **APPROVED** **NOT APPROVED**

comments

name Monique von Morgen date - KE 30/5/2023 signature MvM

Redesigning the way elite athletes interact with their menstrual cycle project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 06 - 02 - 2023 07 - 08 - 2023 end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money, ...), technology, ...).

There are more and more women who participate in sports on a professional level. The Olympic games in 1964, in Japan, have been the first ones where almost half of the athletes participating were female. But still, a lot of female athletes train based on what has worked for men. As in many other fields, there is a research data gap because studies of exercise, muscle and cardiovascular physiology are commonly studied on male participants (O'Halloran, 2020). That comes with obvious problems. Not taking the unique biological differences that women experience, including the menstrual cycle and hormonal fluctuations into account. Women's bodies are not simply smaller versions of men's, so it's important that we approach training in a way that acknowledges and accommodates these differences.

Many athletes as well as other women, only have their monthly bleeding in mind when thinking of the menstrual cycle. But compared to men, female bodies go through a series of physiological changes that occur in the female reproductive system in preparation for pregnancy every month (the gross average menstrual cycle takes 28 days). The cycle varies from woman to woman as it is very complex and influenced by a range of lifestyle factors including the age and 'phase of life' and most importantly, the hormones: Hormones are messengers from the body, delivering orders from our organs to our brain (and vice versa) to initiate nearly everything we do. Hormones tell our bodies when to eat, sleep and even when to grow. Next to helping women to get babies they also make us feel happy, in love or sad. The hormonal levels of men are quite stable compared to the ones of women. As these are influenced by the menstrual cycle (Stacy T. Sims, PhD., 2016). A known and talked about effect is fertility and mood, but what is lesser known and even in top sports often overlooked is the number of effects the cycle can have on an athlete's performance, including physical and mental changes. Nevertheless, there are already a few coaches who pay attention to it, such as the Brisbane Lions Australian Football Club, who monitor their players to ensure athletes do not develop relative energy deficiency syndrome. (Mikaeli Anne Carmichael, et al., 2021)

It is important for female athletes to understand their menstrual cycle to train, eat and work with—not against—their natural physiology. Next to the effects on their performance a lot of women are not aware of the potential consequences that ignoring their menstrual cycle has on their health. One phenomenon that is very prevalent in the female athlete group is amenorrhea. Meaning the absence of menstruation. It is known that female athletes under-report menstrual cycle disorders, with a prevalence of up to 40% in some studies. Several studies have reported this is due to the fact, that there is low awareness among female athletes and their trainers or coaches of the potential healthcare risks. (Verhoef et al., 2021)

One example of gender equality in sports can be seen in the training schedule of the Dutch Olympic rowing team, as reported by one of the team's rowers who stated that the current training schedule for female rowers is exactly the same as that of their male counterparts. The team trains without considering the impact of the menstrual cycle on their performance and compared to several other data (like exercise time, heart rate and calories burned) does not track their cycles. This lack of attention is partly due to the fact that the team has coaches and physiotherapists who are not involved in discussions about the female athletes' menstrual cycles and symptoms. Simply because they are primarily men.

space available for images / figures on next page

introduction (continued): space for images

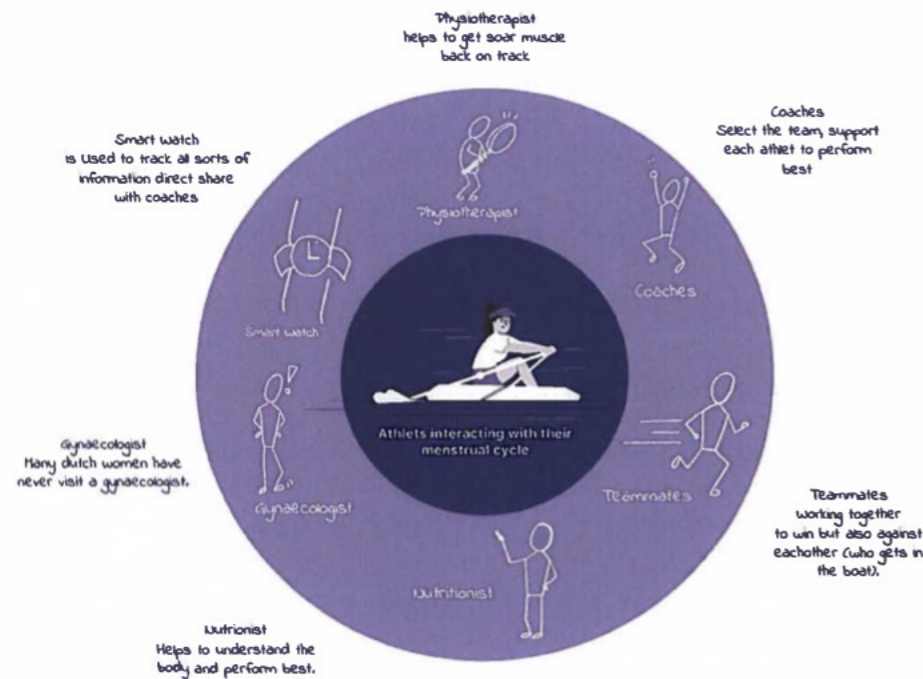


image / figure 1: Stakeholders Map (stakeholders involved in the research)

TO PLACE YOUR IMAGE IN THIS AREA:

- SAVE THIS DOCUMENT TO YOUR COMPUTER AND OPEN IT IN ADOBE READER
- CLICK AREA TO PLACE IMAGE / FIGURE

PLEASE NOTE:

- IMAGE WILL SCALE TO FIT AUTOMATICALLY
- NATIVE IMAGE RATIO IS 16:10
- IF YOU EXPERIENCE PROBLEMS IN UPLOADING, COVERT IMAGE TO PDF AND TRY AGAIN

image / figure 2:

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project

In the world of top sports, much emphasis is placed on tracking various forms of data to share with coaches and be able to create performance analysis. But still, a crucial aspect of women's health is often overlooked: the impact of the menstrual cycle on athletic performance and health. Although research in this field suggests a correlation between the two, the results can be inconsistent due to differences in how each woman reacts to her cycle. As a result, individual needs should be the primary focus.

The menstrual cycle of female athletes is often disregarded due to a lack of awareness. Some athletes and coaches may not realize the significance of the menstrual cycle in relation to performance and health, and may not recognize it as a relevant factor. Additionally, there is still a societal stigma associated with discussing menstrual health, particularly among male coaches, who may feel uncomfortable or embarrassed discussing the topic. Some coaches may also resist incorporating new training methods and technologies that consider the menstrual cycle, as they may prefer traditional approaches or believe that considering the cycle could negatively impact an athlete's mindset.

The outcome of not addressing menstrual issues such as pains, irregular or absent periods is that numerous health problems may be unnoticed. Female athletes who experience these issues are at an increased risk of long-term consequences such as osteoporosis, cardiovascular disease, and infertility.

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Explore the current interaction of female athletes with their menstrual cycle, including any related needs and discomfort. Evaluate the effect of menstruation on athletic performance and overall health. To finally be able to design a solution that improves the relationship of the rowers interact with their cycle.

A crucial aspect of the study is to gain a deeper understanding of current research on the menstrual cycle, including its impact on physical activity and its effects on the mental and physical well-being of women. To accomplish this, it is necessary to engage with experts in the fields of medicine and science.

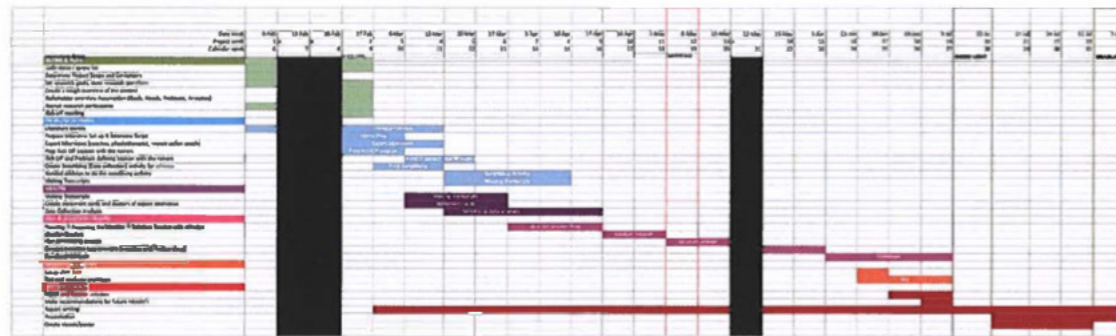
This research will serve as the foundation for testing the influence of the menstrual cycle on the physical and mental wellbeing on a specific group, the Dutch rowing team. By tracking various indicators (like their mood, cycle and pains) over the course of a month and conducting follow-up session, the team will be able to discuss the results and identify the key issues to address. The aim is to identify patterns and which way the menstrual cycle influences the athletes and their performance. An example could be an increased bodyweight during a specific moment of their cycle leading to the side effect of deducting points from the athletes' performance for the additional weight. By combining qualitative research with a small sample of data I hope the findings will be more convincing for the coaches and create a space to open up a discussion.

One main part of the graduation project is the design process itself and to facilitate and create a space to open up the conversation about menstruation. Leading to the aim to identify the specific needs of rowing team and co-design a solution that addresses them. Therefore it is still open what the specific final design will be. A possible design outcome could be to identify the most relevant menstrual effects and designing a digital intervention to track these or to trigger conversation starters.

PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 6 - 2 - 2023 7 - 8 - 2023 end date



Timing:

The graduation project will take 27 weeks to complete, including 3 weeks of breaks, for the block elective and one holiday after the midterm. During the first term, I will work on the project 4 days a week.

The project is going to involve 6 main activities:

1. The Define & Plan Phase: The goal of this first phase is to set a clear scope and plan for the project as well as planning the research with the participants.
2. Research: The second and third phases will utilize the context mapping methodology and methods from creative facilitation. During this time, I will conduct literature research and expert interviews to gain knowledge about the topic and what has already been done in the field. Additionally, I will have a session with the athletes to open up the problem space and define the problem statement. As well as invite the athletes to track their menstrual cycle and symptoms over a month. This activity serves as a sensitization tool, allowing me to get deeper insights in the co-creation session afterwards.
3. Analysis: Next to the other phases I will analyze the interviews using context mapping methods and try to visualize the data.
4. Ideation & Solution Finding: The athletes and possibly other experts will be invited to participate in an idea finding and solution finding session, leading to prototyping.
5. Validation: This is the final phase and will overlap with the prototyping phase, allowing for iteration on the prototype.
6. Documentation: My plan is to keep my report updated every week. The final weeks of the projects are dedicated to reporting and preparing the final presentation.

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, ... Stick to no more than five ambitions.

My motivation for this project comes from a desire to bring attention to a crucial issue that needs more awareness. Our society often overlooks the experiences and needs of half of the population by designing primarily for and by men. Through my graduation project, I aim to make a small impact and challenge these biases.

As a woman, I am also personally interested in learning more about the female body and collaborating with top female athletes to uncover their journey to peak performance. Further I am curious to learn how to analyze the data effectively and gain new insights from it. As well as pursuing my passion for co-design. I hope to empower the athletes by involving them in the design process, giving them the opportunity to drive the improvement of their training from a bottom up approach.

References:

Mikaeli Anne Carmichael, Rebecca Louise Thomson, Lisa Jane Moran,, Thomas Philip Wycherley, 2021. The Impact of Menstrual Cycle Phase on Athletes' Performance.

O'Halloran, K.D., 2020. Mind the gap: widening the demographic to establish new norms in human physiology. *J. Physiol.* 598, 3045–3047. <https://doi.org/10.1113/JP279986>

Stacy T. Sims, PhD., 2016. Roar. How to match your food and fitness to your female physiology for optimum performance, great health, and a strong, lean body for life, The Crown publishing group.

Verhoef, S.J., Wielink, M.C., Achterberg, E.A., Bongers, M.Y., Goossens, S.M.T.A., 2021. Absence of menstruation in female athletes: why they do not seek help. *BMC Sports Sci. Med. Rehabil.* 13, 146. <https://doi.org/10.1186/s13102-021-00372-3>

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant

1.2 MIDTERM EVALUATION

The Midterm Evaluation Form

>> Complete the form to prepare for the midterm evaluation, and send it to your supervisors, at least 3 days prior to your midterm evaluation session. <<

Name student	Alina Wundsam	
Student number	5507561	
Name chair	Cila, N.	
Name mentor	Gomez Ortega, A.	
Interim/In-between results		
Short description of realised interim results: <to be filled in by the student> During the last months I finished my research phase and defined my design direction. Therefore I conducted and analysed 8 experts interviews. These were the basis for the survey were I was able to proof my assumption that rowers performance is affected by the hormonal cycle. The final activity I did were two workshops with rowers and coaches to coin my design direction.		
Reaction on description interim results: <i>The supervisory team is happy about the progress of the project, the activities that were conducted and the enthusiasm that the project sparked. We are confident that the project will be completed within the planned timeframe and good results.</i>		
Reflection <take the course's learning objectives as starting point when reflecting on the topics below >		
Reflection on quality	<to be filled in by the student> I believe so far I was able to deliver good quality research and build connection to experts that support the graduation project.	<to be filled in by supervisory team> Alina has produced high-quality research through a literature review and close collaboration with different stakeholders. It is important to translate it into the writing of
Reflection on planning	<to be filled in by the student> To be honest I am a bit ahead of my planning as I already conducted the ideation workshop. Of course some adjustments were made to the activities and I am happy with	<to be filled in by supervisory team> So far, the project is on track and Alina has conducted several activities ahead of plan. For the next months is important to also dedicate some time to writing the
Reflection on personal ambitions (if formulated in project brief)	<to be filled in by the student> My ambition was to make an impact for one rower. So I kind of achieved that already but I am very excited to continue and not only understand and point out what the problem is but also to create solutions.	<to be filled in by supervisory team> Alina has a very positive and proactive attitude and is very careful and mindful of how she involves the rowers. The booklet is already a very nice outcome that delivers impact and we encourage her to keep

02 INTERVIEWS

2.1 QUESTION LIST

Semi-structured Interview

with Rowing Coach

Introduction: 2 min

My name is Alina Wundsam and I am a Master's student at the Technical University Delft. Thank you for taking the time.

- Before I start Consent for recording and including in the research
- I just started with my final master project which focuses on the interaction between female rowers and their menstrual cycle, and how to make this part of their training routine. For the moment I am trying to get an overview of the different effects and aspects that the cycle has on the individual athlete.

Research Goal:

1. General: Understand how the rowing coaches see the topic of menstruation affecting the athletes and how they deal with girls having menstrual issues.
2. Coaching: Understand how she sees the role of the coach. How the communication amongst the team but also the athletes and health experts is.
3. Tracking: What is currently being tracked? What does the routine look like and what are interesting aspects to track about menstruation in her opinion?

Activity Mindmapping: 20 min

To get a quick overview as our time is limited I would like us to make two quick mindmaps one specific on nutrition and one general on the different aspects where you see an influence of the menstrual cycle and the rower's mental and physical wellbeing.

- Starting with your area of expertise in nutrition and menstrual cycle what are topics that come into your mind?
- In the conversation with the rowers they told me that they are not talking with their coach about their menstrual cycle but with you. Therefore I was wondering about a more general scope. Where do you see an effect of the menstrual cycle on the rower's performance or well-being? This can be for example period pain or lack of motivation.

Deepening Questions during Mindmapping:

Focus Area	Questions
Coaching	<input type="checkbox"/> Can you briefly introduce yourself, how long have you been coaching? <input type="checkbox"/> What is the role of the coach?

2.2 CONSENT FORMS

Consent Form

for the research on rowers interacting with their menstrual cycle.

You are invited to participate in a research study for the graduation project on the interaction of rowers with their menstrual cycle. The study is **conducted by Alina Wundsam from the TU Delft**.

The purpose of this research study is to explore how the menstrual cycle impacts the physical and mental performance of rowers. To accomplish this, I am trying to understand the rowers' experiences and needs, including how and where the menstrual cycle can be incorporated into their routine.

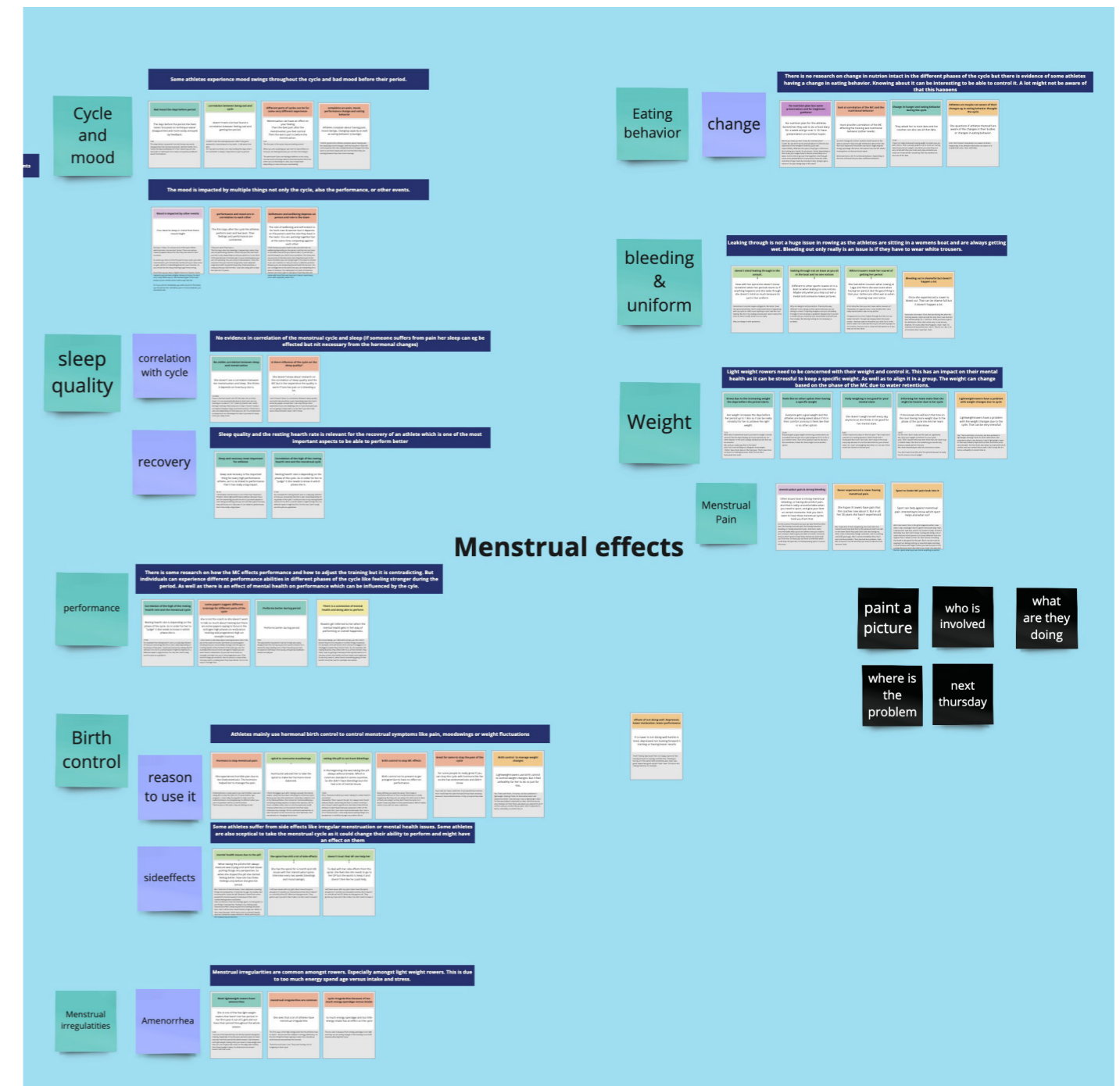
The interview will take approximately 30 minutes, during which I will ask you to mindmap the various topics and provide insights into your expertise in nutrition and your experience in working with the athletes. These insights will be utilized as a foundation for my research to obtain a comprehensive understanding of the diverse areas in which the menstrual cycle affects athletes.

Your participation in this research is entirely voluntary and you can withdraw at any time. You are free to omit any questions. If there is any information that you share during the interview, that you would like me to remove from the research please let me know the latest one week after the interview.

Feel free to contact me Alina Wundsam (a.wundsam@student.tudelft.nl) for answers to pertinent questions about the research and research subjects' rights.

Please sign if you understand this information and consent to participation. Thank you very much for your participation!

2.3 STATEMENT CARDS



structure

Within proteus

- Proteus is a genus of bacteria in the family *Proteaceae*. It is a Gram-negative, aerobic, and motile bacterium. It is found in soil and water, and is a common cause of urinary tract infections.

coach setup

coach setup

- Coaches should be trained in the latest coaching techniques and have a good understanding of the sport they are coaching.

coaches

education

- Coaches should have a good understanding of the sport they are coaching and be able to communicate effectively with their athletes.

responsibility

- Coaches are responsible for the wellbeing of the athletes and need to adjust training based on that. They can do that on the spot if a rower is not doing well on a day but also in the overall training plan. In the higher level (olympic) coaches also are being taken account for the success of a rowing team, therefore they may make more decisions based on winning.

MENSTRUAL CYCLE IS A BIAS THAT NEEDS TO BE CONSIDERED

- weight fluctuation
- mental ability to perform
- not being part of education programs in all fields
- people that don't experience symptoms have it hard to empathize or just don't think about it.

BIASES, Hierarchy

Menstrual irregularity and symptoms are normalised

- Not having a menstruation is normalised amongst rowers, as well as not talking about menstrual symptoms as it feels like you ask for too much attention.

light weight rowers

light weight rowers

- Light weight rowers don't have another choice than having a certain weight. They have 2 challenges the weight and the row bias.

Men bias

Men bias

- Most research on how to train are based on men and if there is no women at all in the team the topic of the menstrual cycle is just not coming up.

Structure, Hierarchy, Biases

coach relationships

coach relationships

- Every coach approaches it different but most coaches try to build trust with their athletes to talk about wellbeing. What data is being shared with the coach depends on what is asked for and the relationship with the coach.

Trainingsplan

Trainingsplan

- There is no official education on how to set up a training plan. But it will be taught by the rowers who maybe got an official education or in most of the cases build up on examples from years before. The training plan is build up in blocks, Micro and Meso phases, allowing to plan towards races. In theory every rower should have a personalised training plan, taking into account everything that influences the rower as a person. But in reality it takes too much time and a team as a plan together.

no gynecologist

no gynecologist

- Dutch rowers before 30 hardly ever go to a gynecologist and don't necessary trust the GP's ability to help them with their MC symptoms.

bias of not knowing

bias of not knowing

- People (women & men) that don't experience any issues with their menstrual cycle just have a bias of not taking it into account, simply because they don't think of it.

no education on the MC in all different disciplines

no education on the MC in all different disciplines

- There is no official education on how to set up a training plan. But it will be taught by the rowers who maybe got an official education or in most of the cases build up on examples from years before. The training plan is build up in blocks, Micro and Meso phases, allowing to plan towards races. In theory every rower should have a personalised training plan, taking into account everything that influences the rower as a person. But in reality it takes too much time and a team as a plan together.

not wanting to share because of influence on selection

not wanting to share because of influence on selection

- Everyone emphasizes on how important it is to share but a lot of athletes don't do so as it might influence if they get a seat on the boat.

tracking data

What is being tracked

- Heart rate as factor during training. Resting heart rate indicating fatigue levels, and helps to see recovery measured in the morning/starting the night. Important indicator is also the wellbeing before and after training some enter this in their logbooks. Some also track hours of sleep. Lightweight rowers also track their weight.

correlations

correlations

- Some have a correlation of resting heart rate and their MC cycle. This means that the way one interprets the number should be different depending on the phase of the cycle. Weight is also often fluctuating throughout the cycle.

tracking opportunities

tracking opportunities

- Tracking over longer period of time can help to understand when 1st one needs to track the individual athletes and then one can bring the insights on a group level to make adjustments to a group training.

tracking benefits

to deal with mood swings

- By accepting how one feels it becomes easier to do desired behavior by also being to plan ahead. Tracking can also show the positive effects of sports on mood so encourage athletes.

to plan and adapt behavior

to plan and adapt behavior

- Knowing the symptoms, how they effect one and when they are likely to occur helps to prepare and manage them. Eg. Snacks or painkiller or doing things one enjoys more.

to signalise if something is off

to signalise if something is off

- Tracking the MC can also be used to signalise if something is unusual eg no menstruation and when experts should be involved.

to open conversation

to open conversation

- By making the MC part of the data collection it can normalise the conversation and put it on a more rational level.

to learn new insights

to learn new insights

- Know what you didn't know. The rowers can be experiential and help to create new knowledge about themselves but also for the over all rowing community as the topic is still lacking research.

sharing data

With whom?

- It is easier to adjust individual trainings to a cycle but it get complicated in a team.

How?

How?

- Better tracking of wellbeing. It is one of the most important indicators and could be used better to understand why someone is maybe not doing well. That's building up. Is it related to cycle or something else? Reflecting about trainings.

Take into account

hard to track in a team

- Every woman is different. Some don't have issues with their cycle so maybe they don't want to make an issue out of it.

not everyone needs/wants to track

not everyone needs/wants to track

- Only track if you can also really do something with the data. What are specific call to actions?

what are specific call to actions after collecting

what are specific call to actions after collecting

- Who should be allowed to access the data? Who are the athletes comfortable with sharing?

with whom to share?

with whom to share?

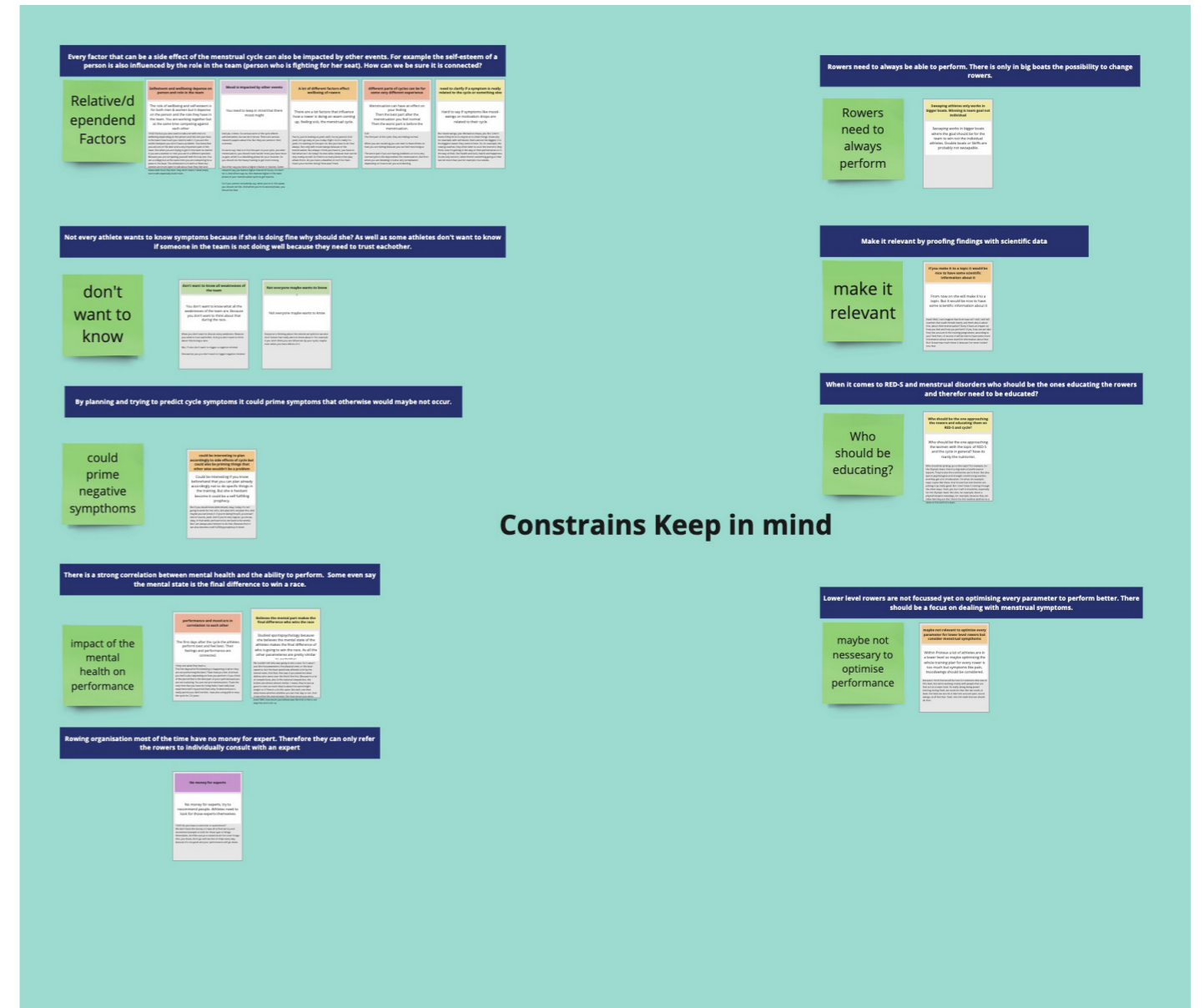
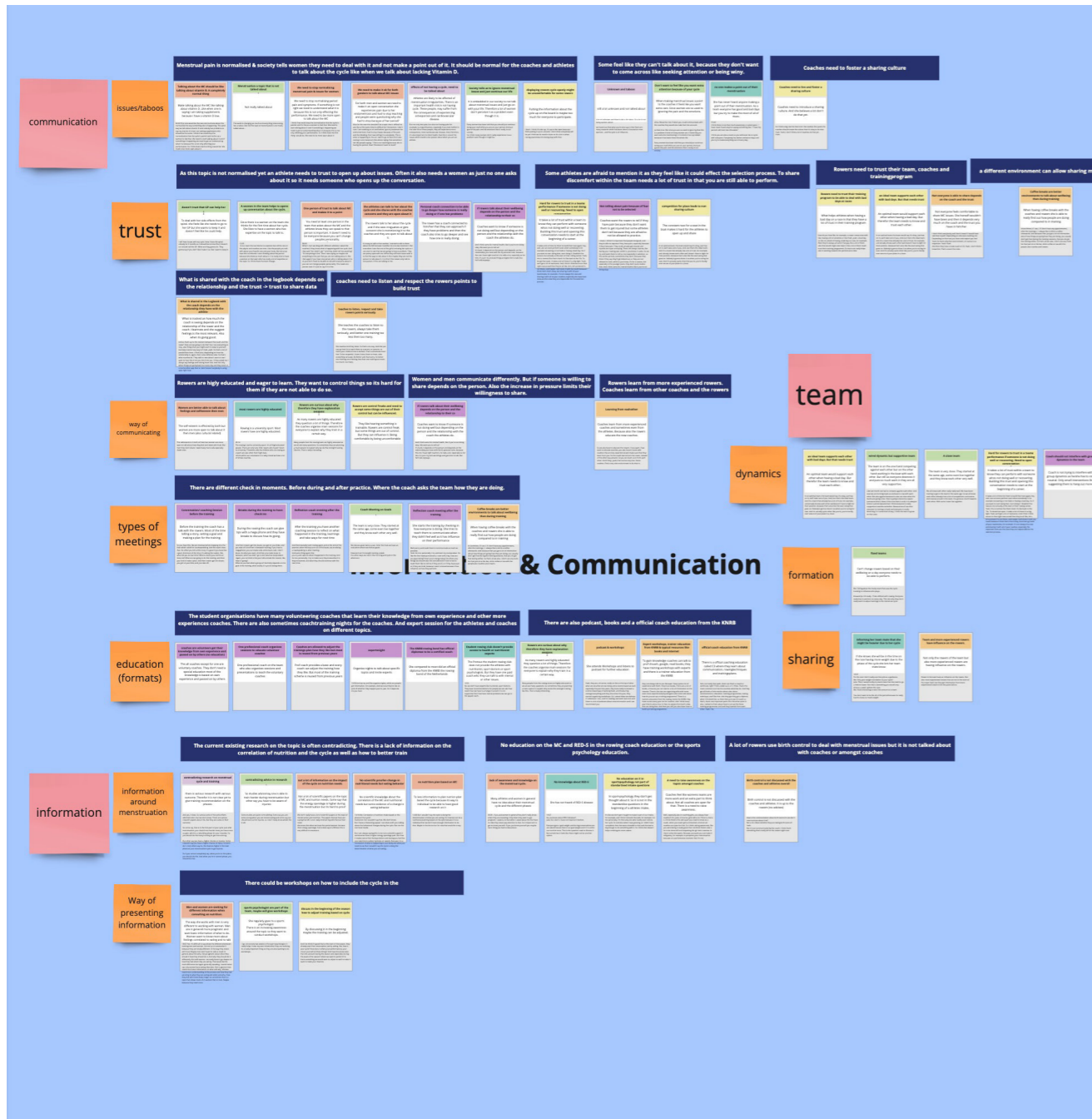
- Garmin watch automatically tracks resting heart rate, sleep and has a great function to track the rowing practice.

Tracking

Garmin watch

Garmin watch

- Garmin watch doesn't track mood and the menstrual cycle in an efficient way.

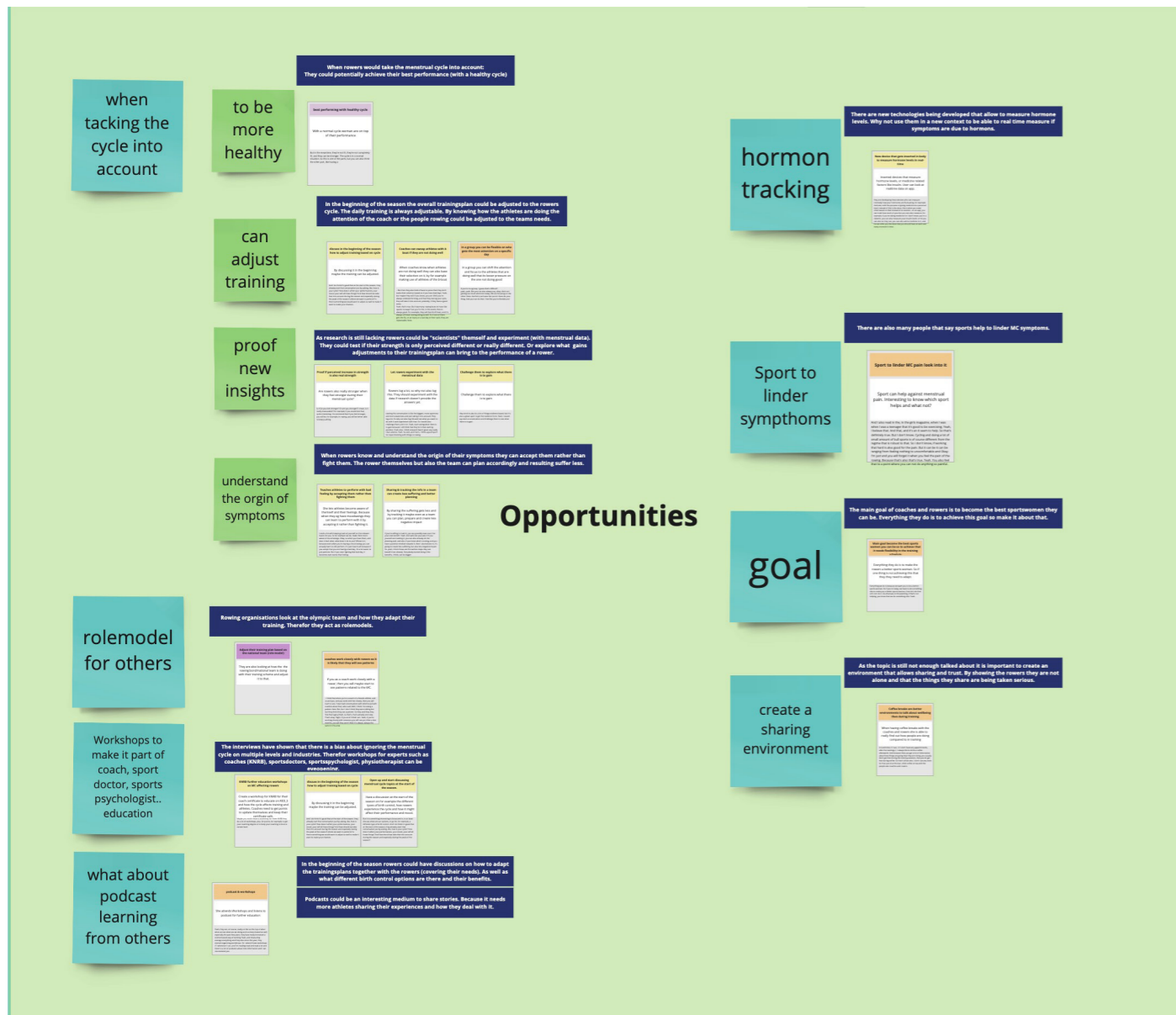


03 SURVEY

3.1 QUESTIONS

Questionnaire: Influence of the menstrual cycle on your performance as a rower

Topic	Question	Answer Type	
Part A: General demographics	Are you still actively rowing?	<ul style="list-style-type: none"> Yes, I am training weekly Yes, but only in my leisure time No, but I used to be rowing multiple times a week. 	<input type="checkbox"/>
	Age?	Years	<input type="checkbox"/>
	Are you currently taking birth control?	Open ended	<input type="checkbox"/>
	Do you have any official menstrual illnesses (eg. Endometriosis)	Open ended	<input type="checkbox"/>
	In which country are you rowing?	Open ended	<input type="checkbox"/>
	Which rowing club are you part of?	Open ended	<input type="checkbox"/>
	What category are you competing in?	Open ended	<input type="checkbox"/>
	Are you a lightweight or an openweight rower?	Select	<input type="checkbox"/>
	For how many years have you been rowing?	Number of years	<input type="checkbox"/>
	How many times per week do you train?	Select	<input type="checkbox"/>
Part B: Menstrual Symptoms	What menstrual symptoms do you have?	<ul style="list-style-type: none"> Stomach pains Severe vaginal blood loss Headache Backache Fatigue Nausea/vomiting Fluid retention Painful breasts Stool problems/diarrhea Psychological symptoms (feeling down/depressed) Concentration disorders Water retention other 	<input type="checkbox"/>
	How many days in total do you experience *symptom* during your menstruation?	Number of days	<input type="checkbox"/>
	What intensity score do you give your *symptom* in total?	0-10 (+ explanation scale)	<input type="checkbox"/>
	Have you ever cancelled a training because of menstrual symptoms? If yes could you elaborate on it?	<ul style="list-style-type: none"> Yes No Notes 	<input type="checkbox"/>
	Do you take any medication or use any remedies to manage menstrual cycle symptoms?	<ul style="list-style-type: none"> Yes No Notes 	<input type="checkbox"/>
	Are you currently taking hormonal birth control to manage physical menstrual symptoms?	<ul style="list-style-type: none"> Yes No Notes 	<input type="checkbox"/>
	Are you or did experience any side effects due to using hormonal birth control?	<ul style="list-style-type: none"> Yes I don't know No Notes 	<input type="checkbox"/>
	Is there a period of you menstrual cycle that you feel more or less able to focus during practice?	<ul style="list-style-type: none"> Yes I don't know No Notes 	<input type="checkbox"/>
	Do you experience any changes in sleep patterns during your menstrual cycle?	<ul style="list-style-type: none"> difficulty falling asleep waking up frequently lesser quality of sleep Restless leg syndrome (urge to move) Pain or discomfort during sleep 	<input type="checkbox"/>
	Have you ever experienced absent periods due to your training behavior?	<ul style="list-style-type: none"> Yes I don't know No Notes 	<input type="checkbox"/>
	Is there a time of you menstrual cycle that you feel stronger during practice?	<ul style="list-style-type: none"> Yes I don't know No Notes 	<input type="checkbox"/>



Questionnaire: Influence of the menstrual cycle on your performance as a rower

Topic	Question	Answer Type	
	Is there a time of you menstrual cycle that you feel more or less flexible during practice?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Do you experience different energy levels due to your menstrual cycle?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Do you experience a different levels of endurance because of your menstrual cycle?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Is there a time of you menstrual cycle that you feel more or less able to focus during practice?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Is there a time of you menstrual cycle that you feel lower self esteem?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Do you worry about your weight or body composition?	<ul style="list-style-type: none"> • Yes • No • Notes 	<input type="checkbox"/>
	Does your motivation to train change depending on your time of your cycle? If yes, could you elaborate?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Have you ever felt more annoyed about feedback due to the time of your menstrual cycle?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Do you think the menstrual cycle is effecting you and your performance as a rower in a psychological way?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
Part C: Tracking	Do you think the menstrual cycle is effecting you and your performance as a rower in a physical way?	<ul style="list-style-type: none"> • Yes • I don't know • No • Notes 	<input type="checkbox"/>
	Are you tracking your menstrual cycle?	<ul style="list-style-type: none"> • Yes, with a menstruation app (eg Flo, Clue) • Yes, with my smart watch (eg Garmin, Apple Watch) • Yes, with my physical calendar • No I am not • Other 	<input type="checkbox"/>
Part D: Communication	What are you tracking regarding to your menstrual cycle?	<ul style="list-style-type: none"> • Duration of the period • Physical symptoms (like pain) • Mood • Birth control • Medications • Overall health 	<input type="checkbox"/>
	Have you ever talked to your team mates about your menstruation or menstrual issues?	<ul style="list-style-type: none"> • Yes • No • Notes 	<input type="checkbox"/>
	Have you ever talked to your coaches about your menstruation or menstrual issues?	<ul style="list-style-type: none"> • Yes • No • Notes 	<input type="checkbox"/>
	I have experiences a situation where I have not mentioned menstrual pain because I didn't want it to effect the selection process.	<ul style="list-style-type: none"> • Yes • No • Notes 	<input type="checkbox"/>
Part E: Closing	Have you heard of RED-S (relative energy defistioncy in sport) before?	<ul style="list-style-type: none"> • Yes • No 	<input type="checkbox"/>
	Thank you for taking the time and sharing your experiences! Is there anything about your experience right now that you would like to change?		<input type="checkbox"/>
	Do you see an opportunity space for including the menstrual cycle in the sports routine of rowers?	MAKE it less leading!	<input type="checkbox"/>
	How do you feel about the communication and educating about the menstrual cycle within the rowing organisations?		<input type="checkbox"/>
	After filling this survey did any experience come to your mind that you would like to share? Maybe elaborating on something you answered before or something you would like to add.		<input type="checkbox"/>
	Do you have any remarks or feedback for me to take in mind?		<input type="checkbox"/>

3.2 CONSENT FORMS

Consent Form

Break the Taboo!

Research on how the menstrual cycle affects female rowers and their sports routine.

There is still a **big research gap on the impact of the menstrual cycle on female athletes**. By participating in the research you are contributing to understanding the mental and physical effects of the menstrual cycle on rowers. While every woman's experience is unique, gathering data from many participants will allow us to identify the most prominent factors and raise awareness about important findings.

Participation in the study involves completing an **online questionnaire** that will take **approximately 5-10 minutes**. The survey covers menstrual symptoms, tracking, and communication, and is entirely voluntary. You have the **freedom to withdraw or discontinue participation at any time** without providing a reason.

This study is part of a **TU Delft Graduation project from Alina Wundsam**. The data will be used as a base for redesigning the way the menstrual cycle is addressed in the rowing training. Significant findings might also be shared with rowing associations.

As with any online activity, the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by **collecting the data anonymously** and storing the data on the TU Delft servers.

We appreciate your time and willingness to contribute to opening up the conversation around female health. **By clicking through the survey you agree to participate voluntarily.**

Don't hesitate to contact us for any further questions or feedback:

Alina Wundsam

a.wundsam@student.tudelft.nl

Alejandra Gomez


A.GomezOrtega@tudelft.nl

3.2 CONSENT FORMS

Please tick the appropriate boxes to continue to confirm agreement	Yes	No
Taking part in the research		
I have read and understood the study information, or it has been read to me. I have been able to ask questions about the research, and my questions have been answered to my satisfaction.	<input type="checkbox"/>	<input type="checkbox"/>
I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and withdraw from the study at any time without having to give a reason.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that taking part in the study involves an online questionnaire and data will be collected anonymously.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that the information I provide will be used as part of the research for the TU Delft graduation project and for potential reports.	<input type="checkbox"/>	<input type="checkbox"/>


3.3 INVITATION

Let's talk about it!
[Research on how the menstrual cycle affects female rowers and their sports routine.](#)



Survey for the coaches:
 Let's talk about it!
 Do you think men and women should train the same way?
 Because this is what most of the current research suggest. But women are not just small men.
 There is still a big research gap on the impact of the menstrual cycle on female athletes.
 By taking part in this research you are helping to gain a better understanding of how well-being and health are addressed by coaches in the rowing field. As well as where potential touchpoints can be for opening up the conversation.
 The survey will take no more than 5 minutes and all data will be collected anonymously.
 Link to the survey:
https://tudelft.fra1.qualtrics.com/jfe/form/SV_8cCAvfS2hd4f4Z8
 12:25 ✓

Help breaking the taboo!
[Take the survey about rowers and their menstrual cycles.](#)



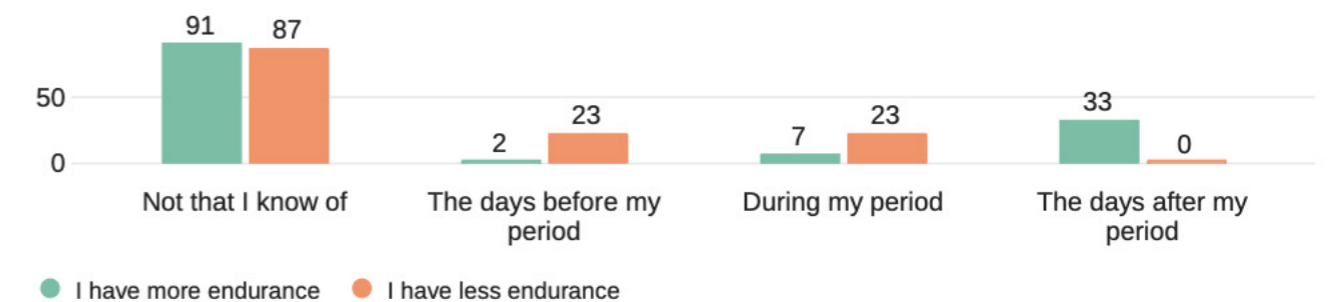
Research by Alina Wundsam @TU Delft

Do you think men and women should train the same way? Because this is what most of the current research suggest. But women are not just small men. There is still a big research gap on the impact of the menstrual cycle on female athletes. By taking 5-10 minutes to participate in the survey you are contributing to understanding the mental and physical effects of the menstrual cycle on rowers. While every woman's experience is unique, gathering data from many participants will allow us to identify the most prominent factors and raise awareness about important findings. Link to the survey:
https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_9zE0HjXARMxTTfM
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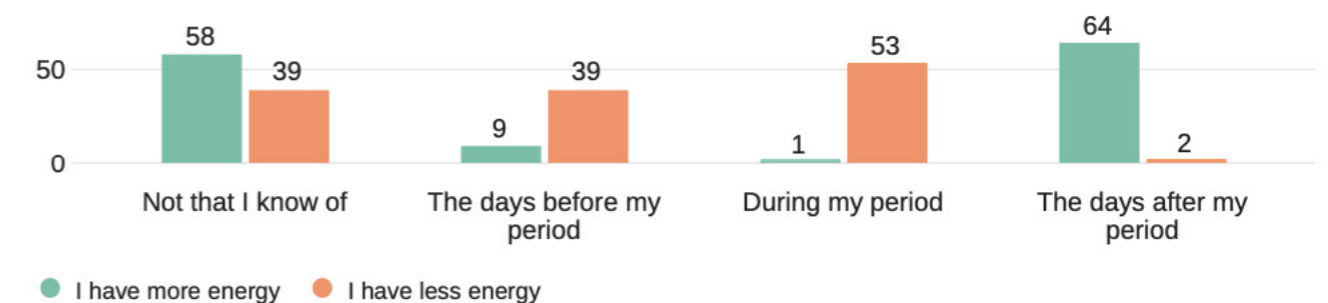
04 RESEARCH RESULTS ON SYMPTOMS, OPPORTUNITIES AND CONSTRAINTS

4.1 SURVEY RESULTS

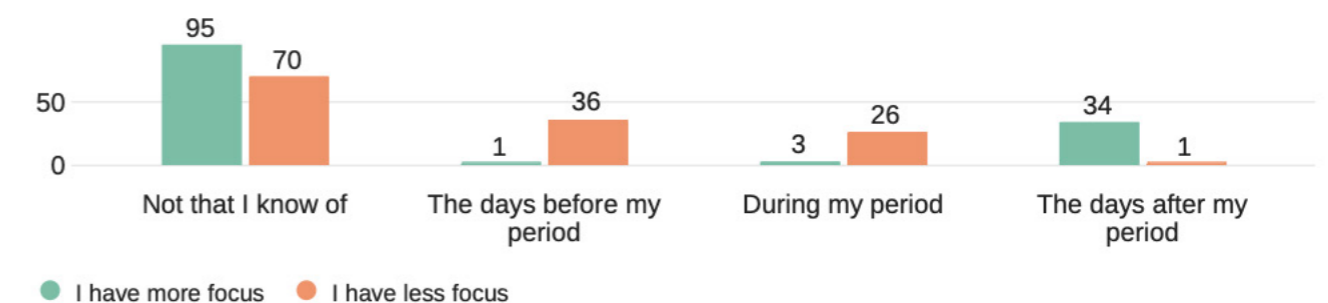
Endurance level



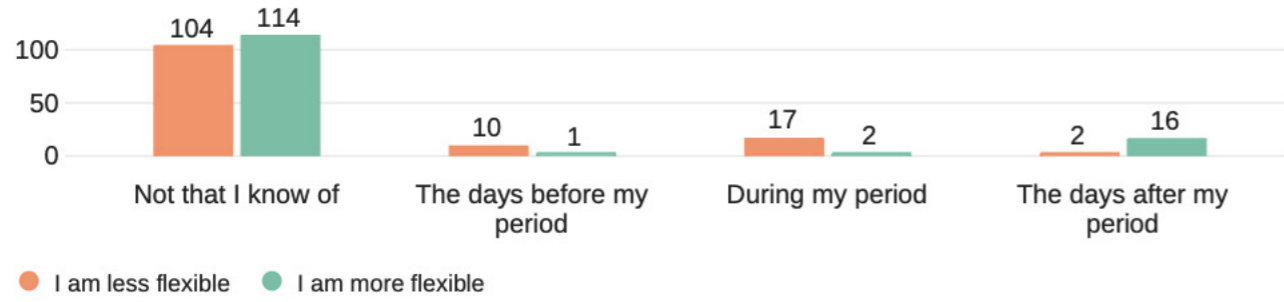
Energy level



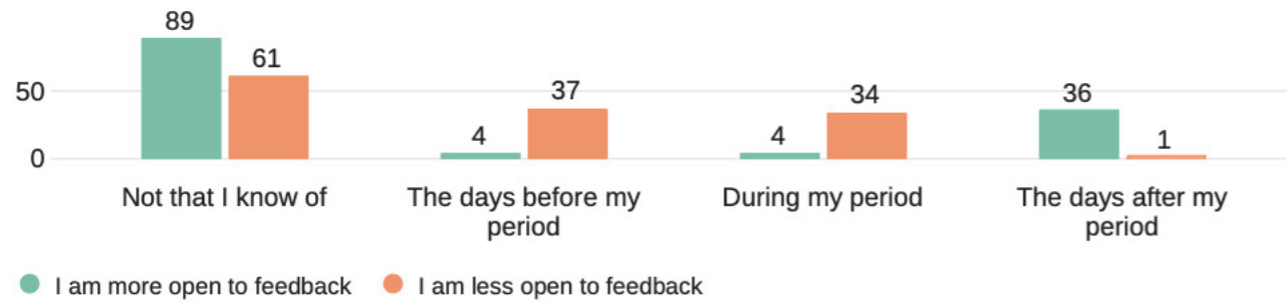
Focus



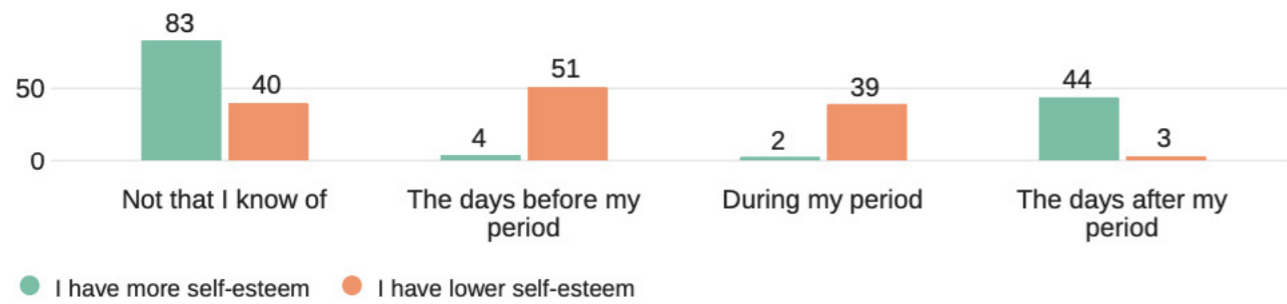
Flexibility



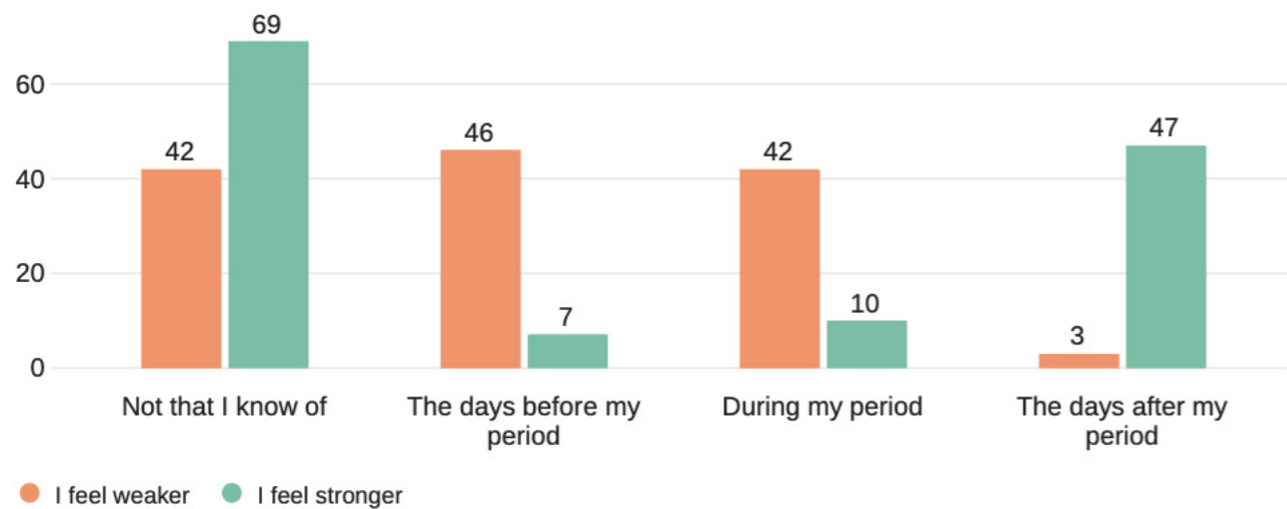
Openess to feedback



Self-esteem



Stronger/Weaker



Q32 - Was there a time when you were training and didn't have menstrual bleeding? - Selected Choice



Q32_3_TEXT - Yes. Please elaborate on this on the box below: - Text

Yes. Please elaborate on this on the box below: - Text

I'm taking the pill until I start bleeding, but the bleedings have happened less frequently since I started rowing

I may not understand the question correctly but I am not continuously on my period so I also train when I do not have menstrual bleeding

When I was a light ladies rower for a year, I did not menstruate for about 10 months

Than afterwards it starts bleeding.

Op een gegeven moment was ik zo erg afgevallen voor licht roeien dat ik niet meer ongesteld werd

A long time while losing weight i did not have menstrual bleeding so i had to put on some weight amd now i do again

Stomach pain was too much

In my first year when I started rowing (17 years old), I didn't get my period during the competitive season until summer where we started training less

when I was like 15 and just started getting my period it was very irregular sometimes skipping months at a time (I was already rowing 5-7 times a week at the time)

I did not eat enough so i lost my period for a year while i was training

When I was rowing lightweight and lost too much weight

Not completely without bleeding, but one day of a few drops

Alle dagen dat ik niet ongesteld ben

In the weeks not being on my period?

OPPORTUNITIES BASED ON SURVEY RESULTS

I was a lightweight for 2 years and stopped menstruating for a few months after losing weight, it did come back though

For two months or so

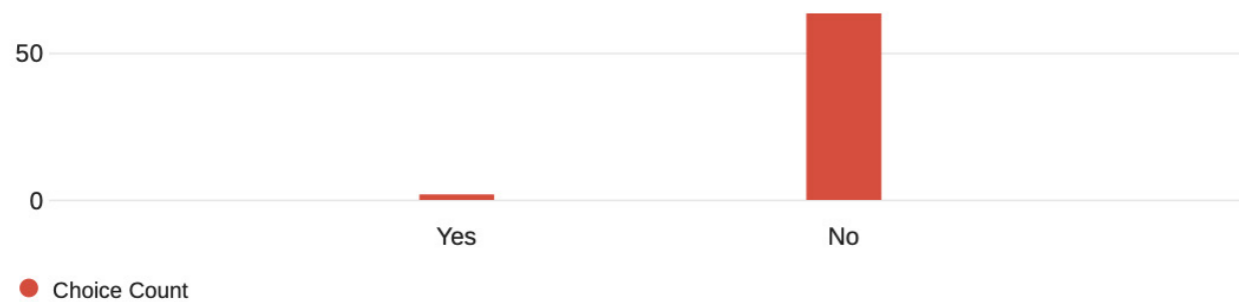
Period completely disappeared, so no bleeding would take place for like 6 months

Always. If I train more than 6 times a week and/or are below 61kg. Thus basically 3 out of my 4 years of rowing

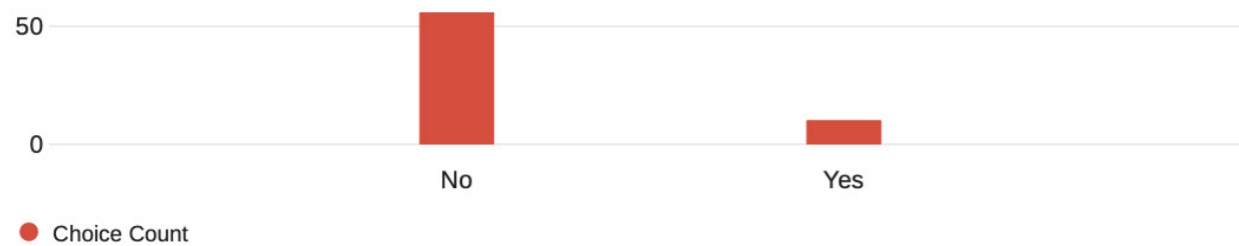
Ik heb een spiraal

During half a year I stopped with the pill and my menstruation also disappeared. In consultation with my GP I started taking the pill again to have menstrual bleeding.

- Do you see a gynaecologist?



Q32 - Have you heard of RED-S (relative energy deficiency in sport) before?



To adjust training on strength and motivation

Yes, I feel extremely powerful and motivated when it ends and the two weeks after. Taking a step back before it begins gives me rest.

me it seems performance is at its best 2 days after my bleeding starts. I could use this to make most of my trainings.

A tailored programme for those who need it. Currently I am in the week after my period and I just feel I can double up the training, while last week I wasn't able to do high intensity.

a lot of women that are stronger in some part of their cycle, so if you can time that with important tests, that would be nice.

The days after my period I always have tons of energy this was true then, and it still true to this day. I would think this is the best time for extra or more vigorous training.

Adjust training to mental capacity

decreased, mostly more hungry the days before my cycle and a big difference in mental capacity. Taking that into account when training could help.

Adjust the trainingscycle (build up) to rowers cycle

Depends, pre season yes, in the season it is hard cause you cannot decide when your peak performance moments are yourself.

Absolutely, training schedule have cycles, usually building up during the week, but with knowledge on cycles this can be done more in sync.

Yes, we have a schedule of 3 weeks but maybe it is more effective when this is based on our menstrual cycle (about 4 weeks).

help rowers understand and deal with nutrition (hunger)

decreased, mostly more hungry the days before my cycle and a big difference in mental capacity. Taking that into account when training could help.

Some have a personal training schedule that could be adjusted

Yes we have personal schedule and are able to adapt trainings depending on how we feel.

When to best build up strenght and muscle growth when endurance based on oxygen

a lot of women that are stronger in some part of their cycle, so if you can time that with important tests, that would be nice.

To achieve individual peak performances

I think for individualised peak moments it could mean a great deal.

a lot of women that are stronger in some part of their cycle, so if you can time that with important tests, that would be nice.

I think at higher levels (so boats with fewer teammates) training schedules could be more personalized.

A tailored program for women who really need it (strong symptoms)

A tailored programme for those who need it. Currently I am in the week after my period and I just feel I can double up the training, while last week I wasn't able to do high intensity.

Have test when athletes can be their personal best

a lot of women that are stronger in some part of their cycle, so if you can time that with important tests, that would be nice.

it could increase quality and performance

Yes, it could increase performance.

Yes, I think if you train on days when you feel energetic and have rest on days that you feel bad it is better for your progression.

Definitely, if it would improve the quality of the trainings for the rower.

CONSTRAINTS BASED ON SURVEY RESULTS

You cannot adjust how you feel during a race

it is hard cause you cannot decide when your peak performance moments are yourself

I think with having games at specific dates it is not very simple to change your training schedule around your menstrual cycle

but races take place when scheduled and you have to perform then

in the end you can't choose the date of a race so you have to get used to the fact that you need to perform even when you're feeling crappy

Hard to adjust training because every woman is different

every woman is different so hard to implement this for a bigger non-professional group

difficult because it fluctuates per person

a boat with 2 or 4 girls it is more difficult

Lower level training are set for the whole team

difficult in lower levels, since the trainings are all set for the whole team.

I do think it is hard as first year rowers, you are in a team and might not have an overlapping cycle

You're sometimes a part of a big team. Its difficult to take everyone into account

4.2 OPPORTUNITIES BASED ON INTERVIEW RESULTS

achieve their personal best

When rowers would take the menstrual cycle into account: They could potentially achieve their best performance (with a healthy cycle)

understand origin of symptoms and handle them

When rowers know and understand the origin of their symptoms they can accept them rather than fight them. The rower themselves but also the team can plan accordingly and resulting suffer less.

Sport to linder symphoms

There are also many people that say sports help to linder MC symptoms.

rolemodel for others

As research is still lacking rowers could be "scientists" themself and experiment (with menstrual data). They could test if their strength is only perceived different or really different. Or explore what gains adjustments to their trainingsplan can bring to the performance of a rower.

Rowing organisations look at the olympic team and how they adapt their training. Therefor they act as rolemodels.

Workshops for experts against bias

The interviews have shown that there is a bias about ignoring the menstrual cycle on multiple levels and industries. Therefor workshops for experts such as coaches (KNRB), sportsdoctors, sportpsychologist, physiotherapist can be eyeopening.

goal

The main goal of coaches and rowers is to become the best sportswomen they can be. Everything they do is to achieve this goal so make it about that.

Adjustments trainingschedule and birth control

In the beginning of the season the overall trainingsplan could be adjusted to the rowers cycle. The daily training is always adjustable. By knowing how the athletes are doing the attention of the coach or the people rowing could be adjusted to the teams needs.

hormon tracking

There are new technologies being developed that allow to measure hormone levels. Why not use them in a new context to be able to real time measure if symptoms are due to hormones.

create a sharing environment

As the topic is still not enough talked about it is important to create an environment that allows sharing and trust. By showing the rowers they are not alone and that the things they share are being taken serious.

what about podcast learning from others

Podcasts could be an interesting medium to share stories. Because it needs more athletes sharing their experiences and how they deal with it.

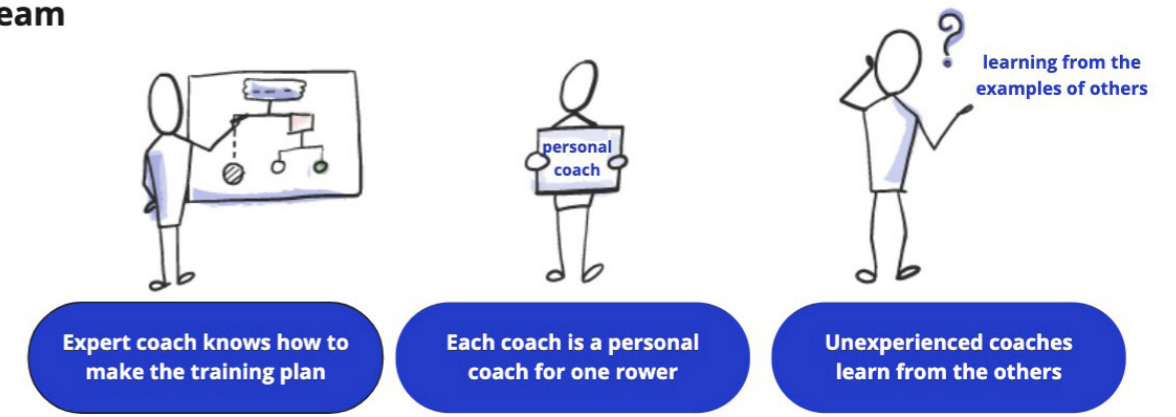
4.2 CONSTRAINTS BASED ON INTERVIEW RESULTS



05 RESEARCH RESULTS ON CONTEXT

5.1 COACHES

Coach team



06 1&2 WORKSHOPS

6.1 AGENDA

WORKSHOP 1: EXPLORING THE PROBLEM SPACE

ACTIVITY	GOAL	TIME	REFLECTION
Introduction <ul style="list-style-type: none"> to the graduation the team the booklet & research the workshop 	To provide the participants with an overview of the survey results and emphasize the importance of the topic. The aim is to motivate them to actively participate and inspire a shift in the current training approach.	15 MIN	Despite providing them with the booklet, it was important to briefly explain the insights to the participants. However, adding interactive elements could enhance their engagement.
Ice Breaker	Get to know everyone and what they want out of the Session.	5 MIN	
Purge: Flower Association	Get all out that is already on their minds regarding training and hormonal cycle.		Went well. Helped to set the scene. But for the next time, I could come back to it or make use of the things written down in one way or another.
How would the training/ communication look like if the menstrual cycle would be part of it?	Participants are divided into two groups: one explores and mapped communication aspects, the other focuses on training. These were then discussed from a new perspective by considering how they would differ when the menstrual cycle would be taken into account. Vote on a matrix for the most impactful and feasible changes.	10 MIN	It was good to let them first define the categories without knowing that they have to look at them from a different perspective. Hard to not get lost in the discussion. Maybe instead of my prompts, it would have been better to let them close their eyes and guide them through a story/scenario. Next time better timing to ensure to include all the categories. Could have been more speculative.
		30 MIN	
Emma Q&A Session	Since I am not a medical professional, the aim was to answer their questions and provide valid recommendations.	15 MIN	Really great to have Emma there. Perhaps next time, it would be helpful to inform participants in advance about the opportunity to ask her questions.
HMW-Questions	Frame the problem statements to solve for the next workshop.	10 MIN	We ran out of time. Ended up with a couple of questions. Definitely plan more time for closing discussion.

WORKSHOP 2: CREATING IDEAS

	GOAL	TIME	REFLECTION
Introduction <ul style="list-style-type: none"> to the graduation the team the booklet & research the workshop 	To inform them about the survey results and the relevance of the topic. Motivate them to participate and change the current way of training.	15 MIN	It was relevant to show the survey results as I guess a lot haven't read the booklet and might now be more curious to check it out again. Next time I should ask them to briefly introduce themselves when I introduced the team.
Post-It Race	Get the creative mind activated. Set the tone for the session -> all about creating ideas.	10 MIN	Worked extremely well. Rowers like competitions!
Reframe the problem	The group should make the HMW question their own to solve.	5 MIN	Was really good to look at the question all together to see if everyone has an understanding and change some of the wording. Didn't take long but had an impact.
Idea sketching	The goal was to come up with ideas and build upon them. Everyone started with an A3 sheet to sketch a first idea and then it was past on.	3 MIN/ ROUND	This worked really well. Some people (non designers) even dared to sketch. Good base to let them individually think of an idea and then discuss
Idea presentation & voting	The participants presented their initial idea to the group. Afterwards the idea with the most potential was selected.	5 MIN	Really good to be able to ask follow-up questions on the ideas and clarify what people meant.
Emma Q&A Session	As I am not a medical aspect the goal was to give the participants the opportunity to ask questions.	15 MIN	Great to have Emma there. Maybe next time inform participants even before the workshop that they get the chance to ask her questions.
WWWWWH - Questions	Define criteria for the idea to work out.	15 MIN	Interesting to discuss and helped a lot to make the ideas more specific and see if they are feasible.

6.2 MATERIAL WORKSHOP 1

6.2 MATERIAL WORKSHOP 2



How might we create a safe space for rowers to discuss their symptoms and receive the same support as they would for other injuries?

Make it your own:

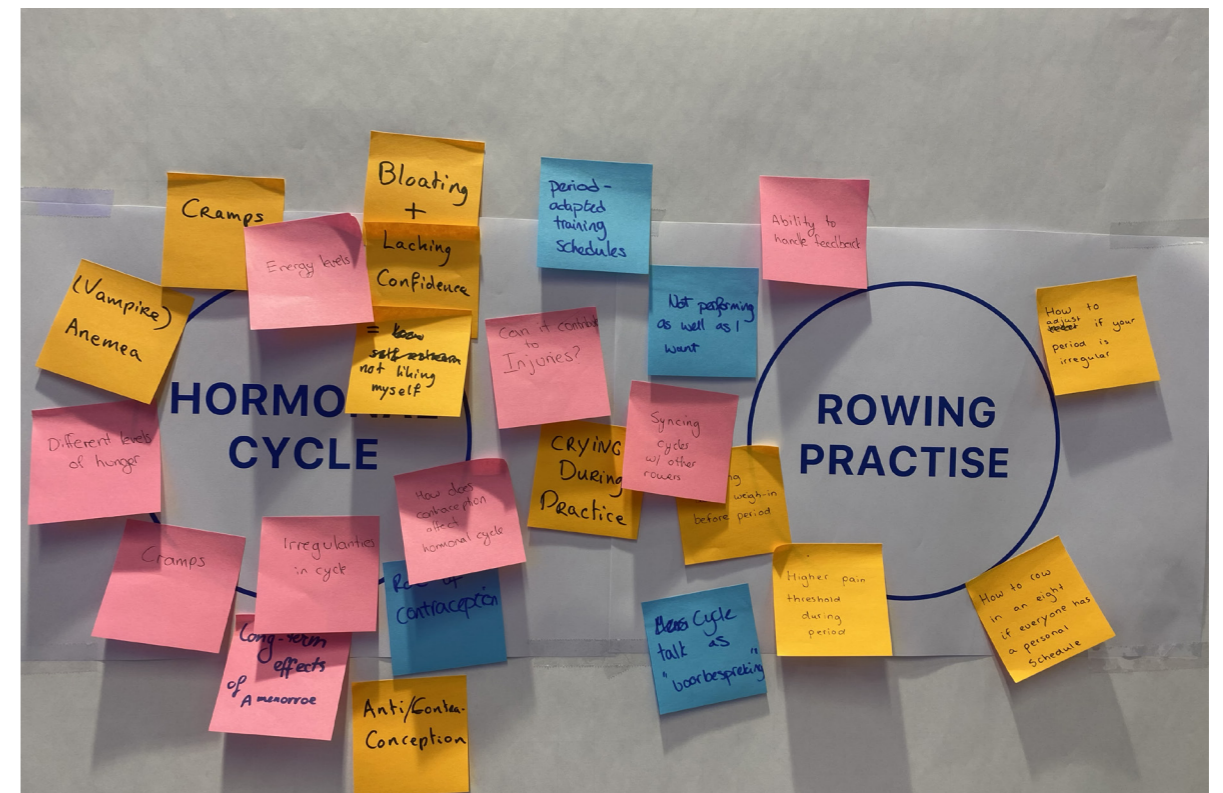
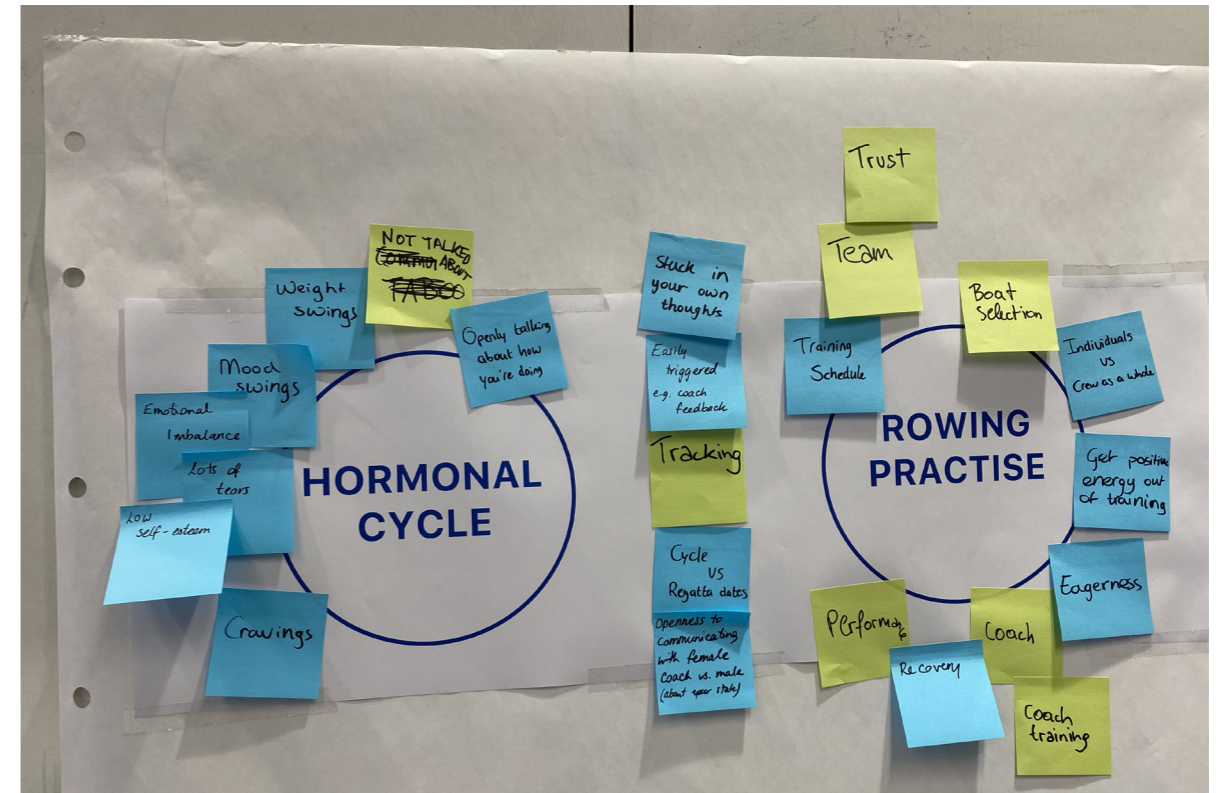
How might we leverage the hormonal cycle as a factor to help rowers reach their personal best and gain a competitive advantage?

Make it your own:

6.2 MATERIAL WORKSHOP 2

WHO?	WHAT?	WHERE?
Who is involved? Who needs to be on board?	What needs to be done for this idea to work? What are success requirements?	Where is the idea taking place? Where is taken place? Or where is.. placed?
WHEN?	WHY?	HOW?
When should we do it? How often? Every training or in the beginning of the year?	Why should we create this idea? What value does it bring?	How can we implement the idea?

6.3 OUTCOME



1) Regular I-Feed-Back - sessions. Talk about it so much that it becomes normal.

Start at the beginning of the year by talking about the general cycle and account in determining the training each week.

Track fatigue continuously as a perceived exertion 1-5 scale. Such that we can relate fatigue to the phase of the hormonal cycle

also track stress level emotions, hunger/craving maybe weight
 → track these things in a logbook that rowers can share with different people to compare if they would do.

PLAN
 talk about all options of contraception & their timing throughout the season
 → choose which regattas to start if things look like they're x

MACRO MESO MICRO
 PLAN IF CONTRACEPTION
 * getting busy

SYMPTOMS LONGTERM
 1) Look at top left corner

Linking training symptoms cycle

	SCORE	DAY
LAURA	100	50
EMMA	80	2
SARAH	75	42

Keep track of best performances of all athletes see if there is a correlation with the cycle.

OPEN UP TALK.
 → make the stats visible

regularly!
 → organize information session, where found correlations are shared to make rowers more aware

→ use the results to change the training program

→ Do a menstruation 100m (or whatever distance) on your 'strong days'
 → incorporate strong days as 'fit' days into training plan from these, track with point in cycle → training plan is more controllable

→ choose which regattas to start if things look like they're x

SYMPTOMS LONGTERM
 1) Look at top left corner

Share with in these sessions

on average we perform our best

show result of averages and stuff in the loads

people to compare if they would do.

An app that gives information about phases & how they could influence your training.

- teaches you more about why you might be feeling a certain way
 → gets you and coaches more accurate information about how the cycle affects your energy levels & trainings
 → connect with your teammates to enable an open discussion.

'logbook' extreme connected with coach
 Show anonymously experiences of everyone
 → + rest of crew, make it a 'group thing', because more people could be affected. Also makes for more support & understanding

maybe can make the coaching/training part from the logbook → individually all app exist.

Lead the record

good morning you are now on day 3 of your ... phase
 Trainings today ...
 Log symp

an app with personal info guiding your training with logbook

plan & track all changes and symptoms (within crew) → can use logbook

re-think how to use the stats and correlate these with personal best (depending on regatta)

1. Syncing rowers
 → look at supplementation at different points in the cycle.
 → lightweight (or maybe hw as well) look at eating more at certain points during cycle
 3. add alternative training when most suitable in cycle.

2. use the training plan to optimize the performance of the synced crew

support chat and conversations, go more in depth at start of training 'so how is everyone doing'
 + provide mental support like snacks, chilling etc. at hardest days mentally

HAVE ROWERS SUPPORT TEAM
 HOW TO DEAL WITH ... PAIN
 → mental struggle as well!

Keep track of

Training schema

Create open discussions between rowers and their coaches about the cycle and when they are most/least susceptible to feedback → log the coach and/or the rower.

Physical Mental Pains → How to keep training optimally?

TRAFFIC LIGHT CHECK IN MOMENT (Allow tracking overall Proteus)

→ Allow room for more technical/heavier training during good phase

log the coach and/or the rower. ask before a session how susceptible they are (irrespective of their cycle)

+ But also keep room for when something changes during the training

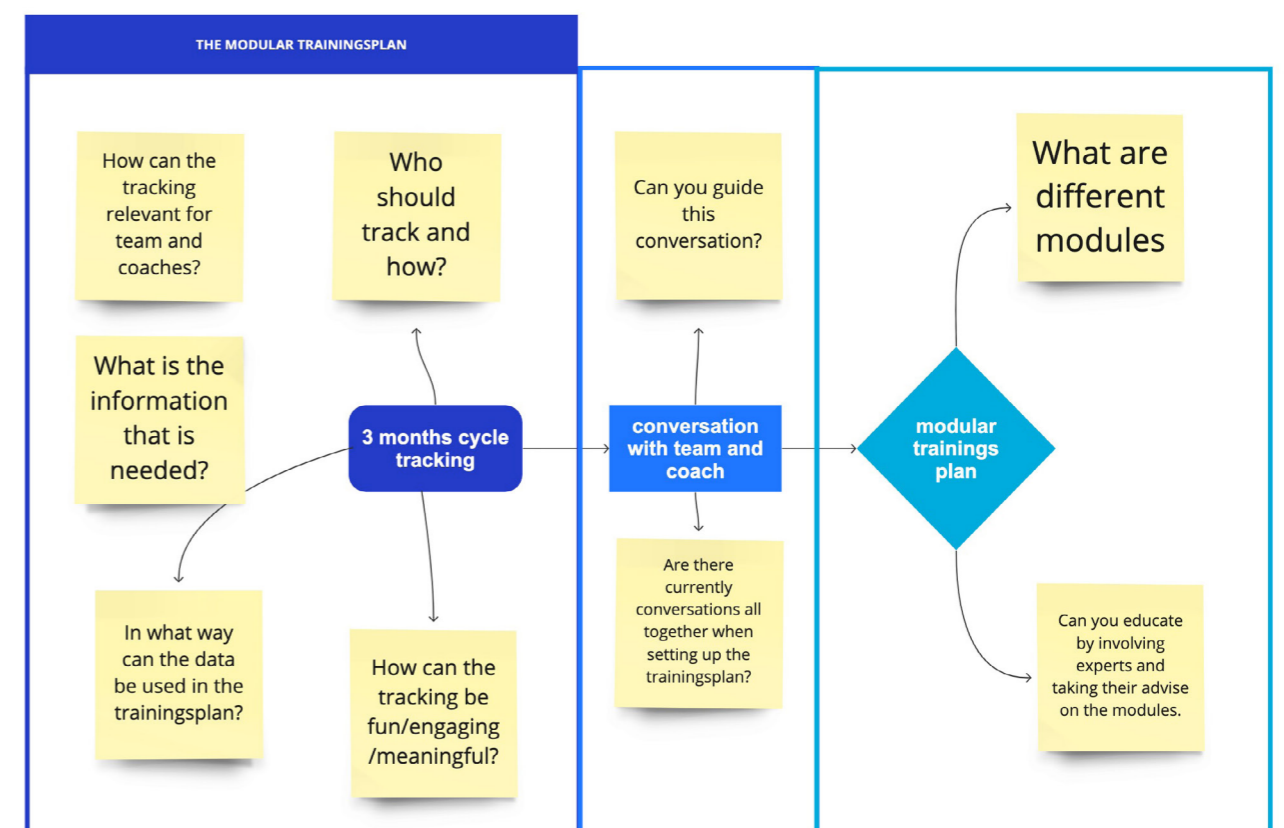
↳ save feedback for later moments in form of voice memo's and videos of rowing that coach made and only gets 'unlocked' during phase where rower can work with criticism

↳ plan video analysis during this time with

the way feedback is given to take into account the menstrual cycle

WHO?	WHAT?	WHERE?
<p>Who is involved? Who needs to be on board?</p> <ul style="list-style-type: none"> Rowers Coaches Prof coach Team mates Experts (Sportarts, gynecologist, nutritionist..) 	<p>What needs to be done for this idea to work? What are success requirements?</p> <ul style="list-style-type: none"> Talk to experts to get information Let rowers track cycle + symptoms for 3 months Individual rowers will learn what is best for their bodies Will follow by a talk with coach and teammates Modular Micro trainings plans 	<p>Where is the idea taking place? Where is taken place? Or where is.. placed?</p> <p>When schedules are being arranged.</p>
WHEN?	WHY?	HOW?
<p>When should we do it? How often? Every training or in the beginning of the year?</p> <ul style="list-style-type: none"> Off-season (summer break) tracking the cycle of rowers. That is the basis for a discussion and adaptation of the modular plan. 	<p>Why should we create this idea? What value does it bring?</p> <p>To really make an impact for the rowers training you should not only track another factor but you really need to change something in the training. Also every rower should have a personalised schedule but it is really complicated to align and no tools for that yet.</p>	<p>How can we implement the idea?</p> <p>In off season rowers track cycle + symptoms Pre-season: Rowers, coaches and experts discuss effects of cycle and possible trainings tweaks Race season: All rowers feel their bests because they know their cycles.</p>

WHO?	WHAT?	WHERE?
<p>Who is involved? Who needs to be on board?</p> <ul style="list-style-type: none"> Rowers Coaches Crew as a whole 	<p>What needs to be done for this idea to work? What are success requirements?</p> <p>Redesigning the log-book in an app. Collect data insights of the cycle. <u>Data loggin system with:</u></p> <ul style="list-style-type: none"> Today I had this training and it was... The day of the cycle Performance: Today I feel exceptionally stong ect. 	<p>Where is the idea taking place? Where is taken place? Or where is.. placed?</p> <p>In an app. Currently everything is collected in spread sheets. They "take a lot". An app could also give insights back to the coach and athlete.</p>
WHEN?	WHY?	HOW?
<p>When should we do it? How often? Every training or in the beginning of the year?</p> <p>Daily, but once every two days might also be ok. In the end the more data the better.</p> <ul style="list-style-type: none"> Things like resting heart rate preferable every day. How did a training go could be done less frequently. 	<p>Why should we create this idea? What value does it bring?</p> <ol style="list-style-type: none"> To give the rower insights into her performance in relationship to her cycle. To give coaches/science as a whole data to recognise patterns. To give crewmates means to support eachother. 	<p>How can we implement the idea?</p> <p>Hire an app developer Or improvements to an excisting app</p>



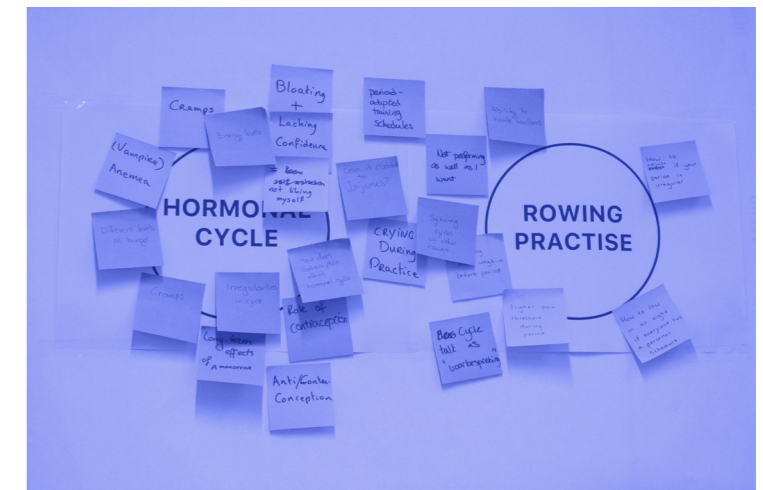
6.4 REFLECTION

WORKSHOP 1: OVERALL REFLECTION:

The first workshop was as a good starting point to understand the dynamics between rowers and coaches and initiate a discussion on the topic. It became evident that there is a significant need to educate people on this subject, as most participants had limited knowledge.

Next time, I would allocate more time for discussion and encourage even more speculative thinking. While the prompts generated laughter, they didn't sufficiently stimulate participants to envision a world where the menstrual cycle is experienced by everyone, including men. It might be more effective to incorporate roleplay or guided scenarios. During the workshop, I participated in one group, which allowed me to contribute to the discussion, but I felt like I missed out on the insights from the other group. Next time, I will either avoid having multiple groups or find better ways to document

the discussions. The timing was also not ideal, as it was challenging to navigate conversations and everyone the space to



share as it is such a sensitive topic.

Overall it was a good workshop. The result was that communication is the essence of everything and that adapting the training to an individual level, is challenging but would be needed.

The 3 months tracking before the trainings-period starts

Goal:
1) To help the rower understand if their menstrual cycle has an impact of their performance?
2) See if rower has specific symptoms effecting their trainings?
3) See if rower has menstrual cycle irregularities.

Motivation for the rower:
Help the rower understand themselves better and how they can perform in a best way.
Help connect to themselves. As well as to why they sometimes maybe don't perform and on sometimes really good.
Get a more personalised trainingsplan

Abilities
What are abilities they have during holiday period are they still training?

Triggers
What are abilities they have during holiday period are they still training?

Outcome for coaches to personalise trainings-plans and include the cycle differences

Goal:
1) To visualise the outcome in a way that helps the coaches to take their rower individual needs into account
2) Help coaches detect rowers who experience menstrual irregularities and start a discussion

Motivation for the coaches:
Their goal is to create a safe environment for rower to share. By making it part of their routine it because less of a taboo topic. As well as it has the potential to help coaches find new ways to let rowers perform/train better.

Abilities
The outcome of a team should be like a heath map showing already correlations of the teams data.
It is already challenging for the coaches to make the agendas so the design needs to be helpful not hindering

Triggers
The trigger is to be defined.

Inspiration

Trainings for different comfort zones

Goal of the trainings

ATHLETES PERFORMANCE CURVE



7.1 LOGBOOK DATA VISUALISATIONS

WORKSHOP 2: OVERALL REFLECTION & RESULTS:

I am really happy with the outcome of the session. For this workshop, I had enough time upfront to prepare the room and already felt more comfortable presenting my findings. The Post-it race worked out well because of the competitive element. For the next workshop, it would be nice to



relate all activities in a way to rowing. To make the participants engage and relate more. As always, there is never enough time. But the ideas that came out are a good starting point for me to define my design direction. I also believe I can now always get back to the rowers and coaches who participated. Because the final design, especially when it goes into the topic area of training plans need to be cocreated with coaches, athletes and in consultation with other experts.

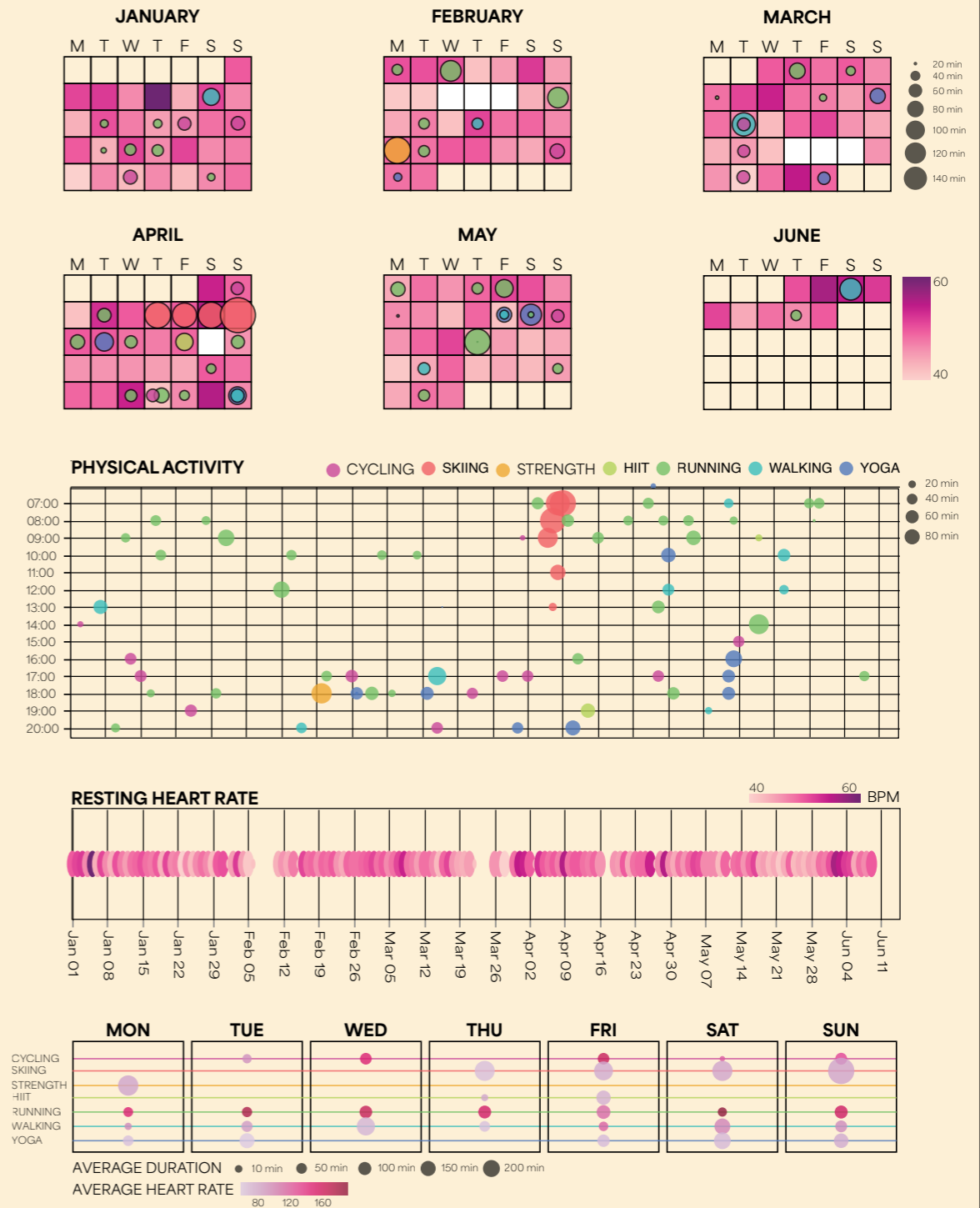
During the second workshop, multiple ideas were generated, with two ideas ultimately

selected. The first idea addresses the limitations of the existing logbook, which only allows for training information to be recorded in an Excel sheet. It lacks the inclusion of menstrual cycle information and has significant potential for optimization. As an App it should enhance rowers' self-understanding and provide a better tool for tracking their training. The second idea emphasizes the importance of not only tracking the menstrual cycle but also incorporating it into the rower's training plan. This involves creating a modular training plan based on individualized needs. Rowers would track their cycles for three months, resulting in a personalized plan that adjusts to their unique needs. This approach would transform the way coaches and rowers interact and plan together.

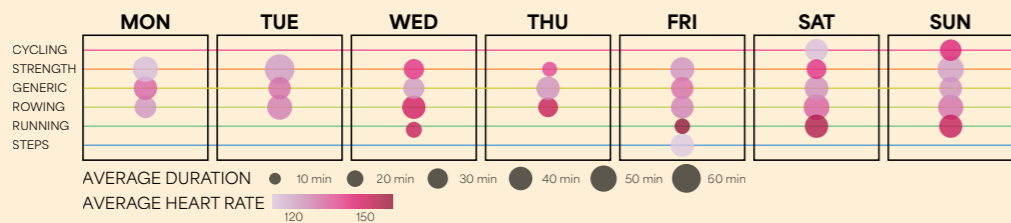
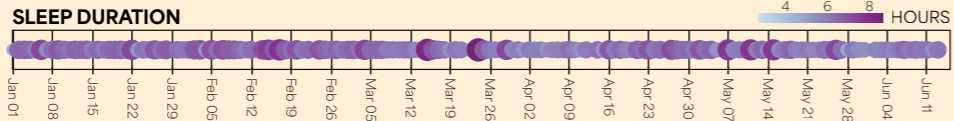
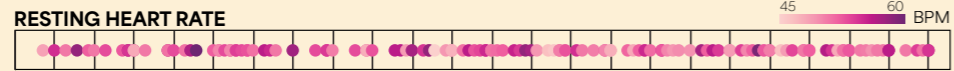
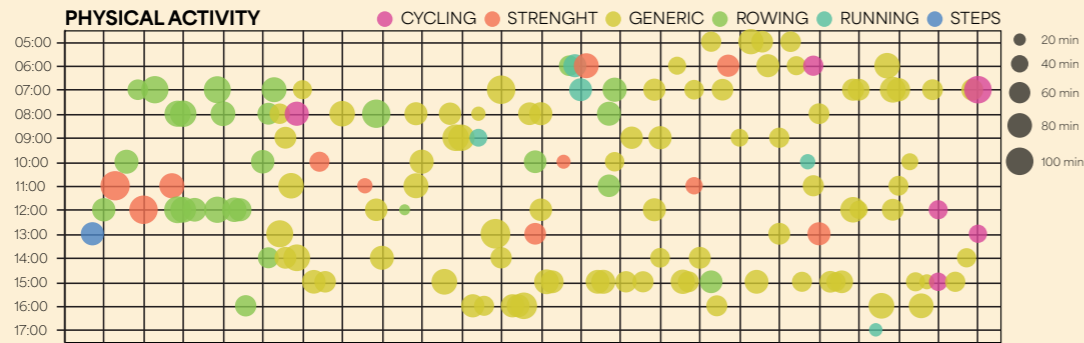
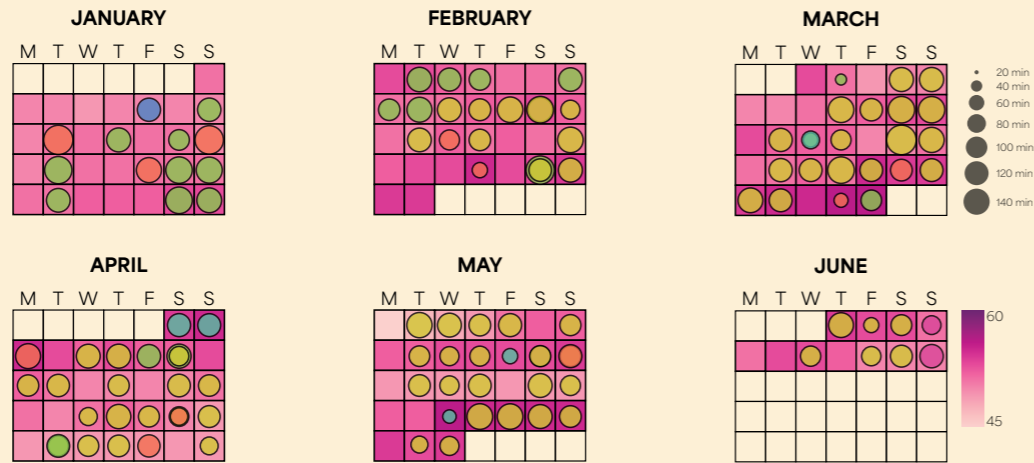
The workshop materials and defined solutions can be found in the appendix section page....



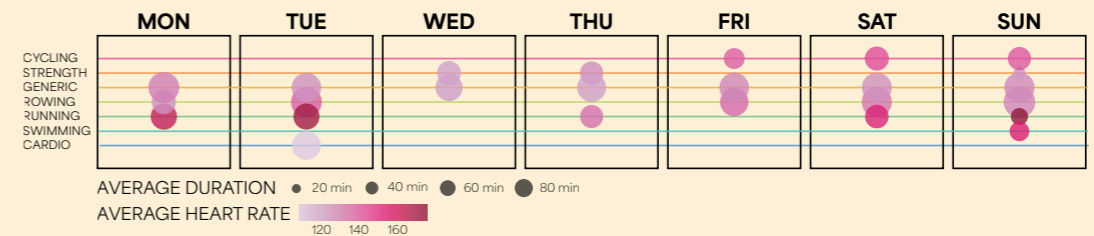
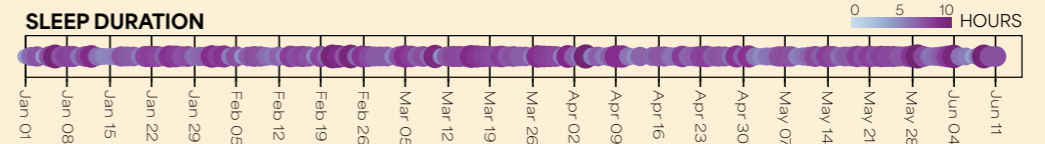
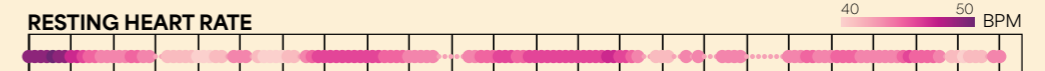
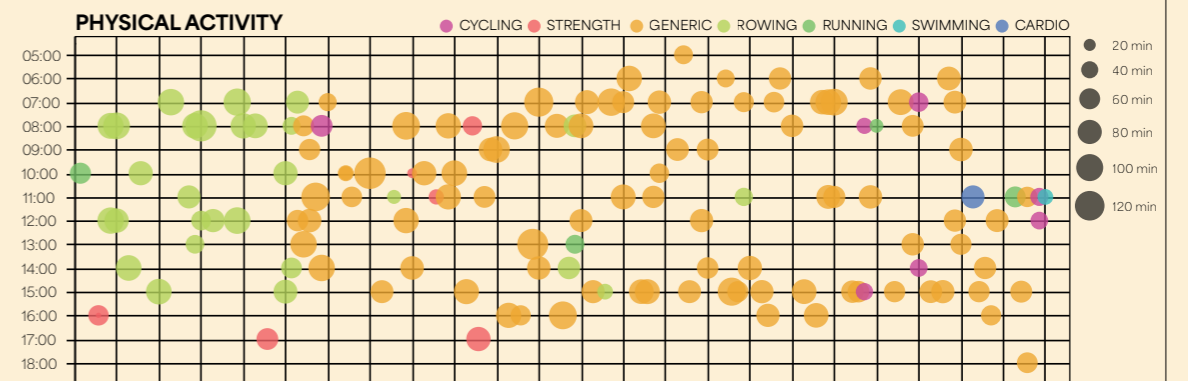
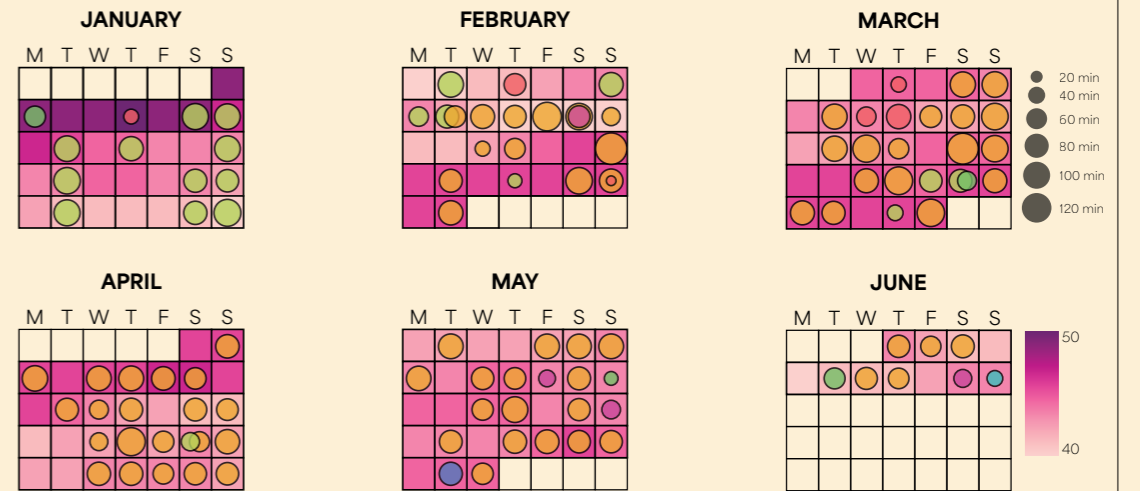
Metrics in Motion



Metrics in Motion



Metrics in Motion



7.2 SESSION MATERIAL

**REFLECTION
MY PERSONAL DATA**


Can you identify any training patterns in your weekly routine? Take a moment to review your logbook and see if you notice any trends in how you felt on those specific days.


MON	TUE	WED	THU	FRI	SAT	SUN


These days I prefer to train because....


**REFLECTION
MY PERSONAL DATA**


I experience these menstrual cycle symptoms...



Psychological symptom


Water retention


Stomach pain

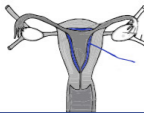

Fatigue


Back pain


Painful breasts

Others:

Have you noticed any fluctuations in your data or do you perceive changes throughout the different phases of your menstrual cycle?

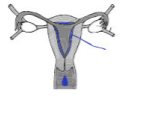


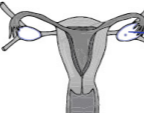
THE DAYS BEFORE

I feel, experience,...

I feel, experience,...

THE PERIOD





THE DAYS AFTER

I feel, experience,...

7.2 SESSION MATERIAL

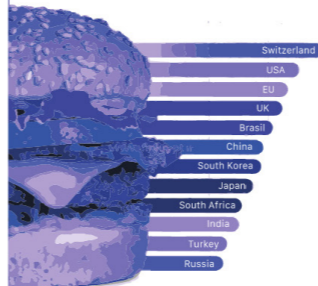
**REFLECTION
MY PERSONAL DATA**

When I look at my data, it feels like there is a correlations between my performance and my menstrual cycle, such as...

When I look at my data, I notice patterns of peaks or lows in performance during specific weeks, particularly during...

These might be influenced by...


What specific correlation between performance and cycle would you like to learn more about?
If you could create your own metrics to track, what would you name them? For example, my pain metrics.
Make a visualisation of your personal metrics.



Eg. the Big Mac Index: Compare the cost of the same burger across different countries

**SHARING
MY PERSONAL DATA**

I would describe the relationship I have with my coach as...



**WITH MY
PERSONAL
COACH**


To provide the best support, my coach should have knowledge about and I wouldn't mind sharing...

<p>Training & Needs</p> <ul style="list-style-type: none"> <input type="checkbox"/> My Training History <input type="checkbox"/> My Performance Data <input type="checkbox"/> My Rowing Goals <input type="checkbox"/> My Other Personal Goals <input type="checkbox"/> My Strength & Weaknesses <input type="checkbox"/> What Gives Me Energy <input type="checkbox"/> What Drains My Energy <input type="checkbox"/> My Academic Commitments (eg. exam periods) <input type="checkbox"/> My _____ 	<p>Health</p> <ul style="list-style-type: none"> <input type="checkbox"/> My Injuries History <input type="checkbox"/> My Medical Conditions <input type="checkbox"/> The current phase of my menstrual cycle. <input type="checkbox"/> Irregularities or absence of my menstrual bleeding <input type="checkbox"/> My menstrual cycle symptoms <input type="checkbox"/> My use of contraceptives <input type="checkbox"/> Red-S and other female health relates illnesses <input type="checkbox"/> My _____ 	<p>Communication</p> <ul style="list-style-type: none"> <input type="checkbox"/> My Communication Preferences (eg. prefered way of getting feedback,..) <input type="checkbox"/> What I find annoying <input type="checkbox"/> When to (not) contact me & how <input type="checkbox"/> How I like to receive help with my training <input type="checkbox"/> My preferred help with personal problems (eg. menstrual cycle symphoms, stress,...) <input type="checkbox"/> My _____
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7.2 SESSION MATERIAL

THE IDEAL COACH RELATIONSHIP

In an ideal scenario the relationship between a coach and a rower is...



To provide the best support, a coach should have knowledge about a rowers...

Training & Needs <input type="checkbox"/> Training History <input type="checkbox"/> Performance Data <input type="checkbox"/> Rowing Goals <input type="checkbox"/> Other Personal Goals <input type="checkbox"/> Strength & Weaknesses <input type="checkbox"/> What Gives her Energy <input type="checkbox"/> What Drains her Energy <input type="checkbox"/> Academic Commitments (eg. exam periods) <input type="checkbox"/> Other_____	Health <input type="checkbox"/> Injuries History <input type="checkbox"/> Medical Conditions <input type="checkbox"/> The current phase of her menstrual cycle. <input type="checkbox"/> Irregularities or absence of her menstrual bleeding <input type="checkbox"/> Her menstrual cycle symptoms <input type="checkbox"/> Her use of contraceptives <input type="checkbox"/> Red-S and other female health relates illnesses <input type="checkbox"/> Other_____	Communication <input type="checkbox"/> Her Communication Preferences (eg. preferred way of getting feedback,...) <input type="checkbox"/> What she find annoying <input type="checkbox"/> When to (not) contact her & how <input type="checkbox"/> Her preferred help with training <input type="checkbox"/> Her preferred help with personal problems (eg. menstrual cycle symphoms, stress,...) <input type="checkbox"/> Other_____
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08 TRACKING EXPLORATION SESSION

HOW WOULD A CHILD TRACK A PERSONAL FACTOR?

INTENTION

The aim behind incorporating the perspective of a child was to explore tracking behavior without the constraints imposed by society. During the discussion, the focus was on how children often struggle to articulate their feelings due to limited language skills. Instead, they express themselves through actions like acting out, crying, or creating art. Understanding the psychology of a child becomes intriguing when observing their choices among a box of toys, as it can reveal insights into their current needs.

RESULTING IDEAS

DRAWING CANVAS

Instead of requiring rowers to write their answers, they can express their needs and experiences through drawing on a wall or canvas. This approach recognizes that discussing the menstrual cycle may be challenging, as language may be lacking, similar to children. This activity can also be conducted within a team setting to explore potential correlations among the members.

RESULTING IDEAS

CHECK-IN MOMENTS ITEM BOX

Transform the current check-in moments for rowers by allowing them to select an item that represents their needs rather than using words to communicate how they are doing. As some individuals may find it challenging to immediately open up verbally, the chosen item can serve as a tool to initiate conversations and encourage coaches to ask follow-up questions to dive deeper.

JENGA TOWER

Children enjoy playing with blocks, so why not track each day of the cycle by selecting a block that represents specific symptoms or insights to track? As the cycle progresses, rowers can build their tower using these blocks. At the end of the cycle, they can reflect on the tower's composition and dismantle it, similar to a game of Jenga.



HOW WOULD AN ARTIST TRACK A PERSONAL FACTOR?

INTENTION

The perspective of the artist was intended to inspire more visual or creative outcomes. The discussion to this question was that artists often develop a distinct personal style, and the more they create, the clearer the patterns of their style become.

RESULTING IDEAS

BUILDING A SCULPTURE

Similar to an artist shaping a clay sculpture, the rower can incorporate this concept into their tracking process. Each day of the menstrual cycle, the rower adds a piece of clay to the sculpture. As the cycle progresses, the sculpture takes shape and evolves. Once the cycle is complete, the sculpture serves as a tangible representation of the process. The rower can reflect on the journey and gain insights from observing the sculpture's form and composition. Just as an artist gains insight into their style through continuous creation, tracking the menstrual cycle requires multiple iterations to observe individual patterns. It becomes a motivating and ongoing process of sculpting to understand the unique patterns and rhythms of the cycle.



HOW WOULD A MONK TRACK A PERSONAL FACTOR?

INTENTION

The aim behind selecting the perspective of a monk was to encourage the perspective of mindfulness and spirituality. During the discussion, it was highlighted that when a monk communicates with a higher power, it creates a non-judgmental space where individuals can freely express their thoughts and concerns. Monks also incorporate movement into their routines.

RESULTING IDEAS

THE CANDLE LAMP

A rower can have a dedicated candle lamp that they speak to every day, sharing the information they wish to track. The lamp would be equipped with AI language recognition technology to convert speech input into text and organize the data accordingly.

MOVEMENT-BASED TRACKING

Monks utilize specific movements to establish a deeper connection with themselves and handle symptoms. The concept would involve using body recognition technology to identify these specific movements, which serve as indicators to track. Instead of the rowers having to write down their input, they would incorporate it into their stretching or warm-up routines. For instance, if a rower experiences stomach pain, they can perform a movement that helps alleviate the pain, thereby tracking it.

HOW WOULD A CRIMINAL TRACK A PERSONAL FACTOR?

INTENTION

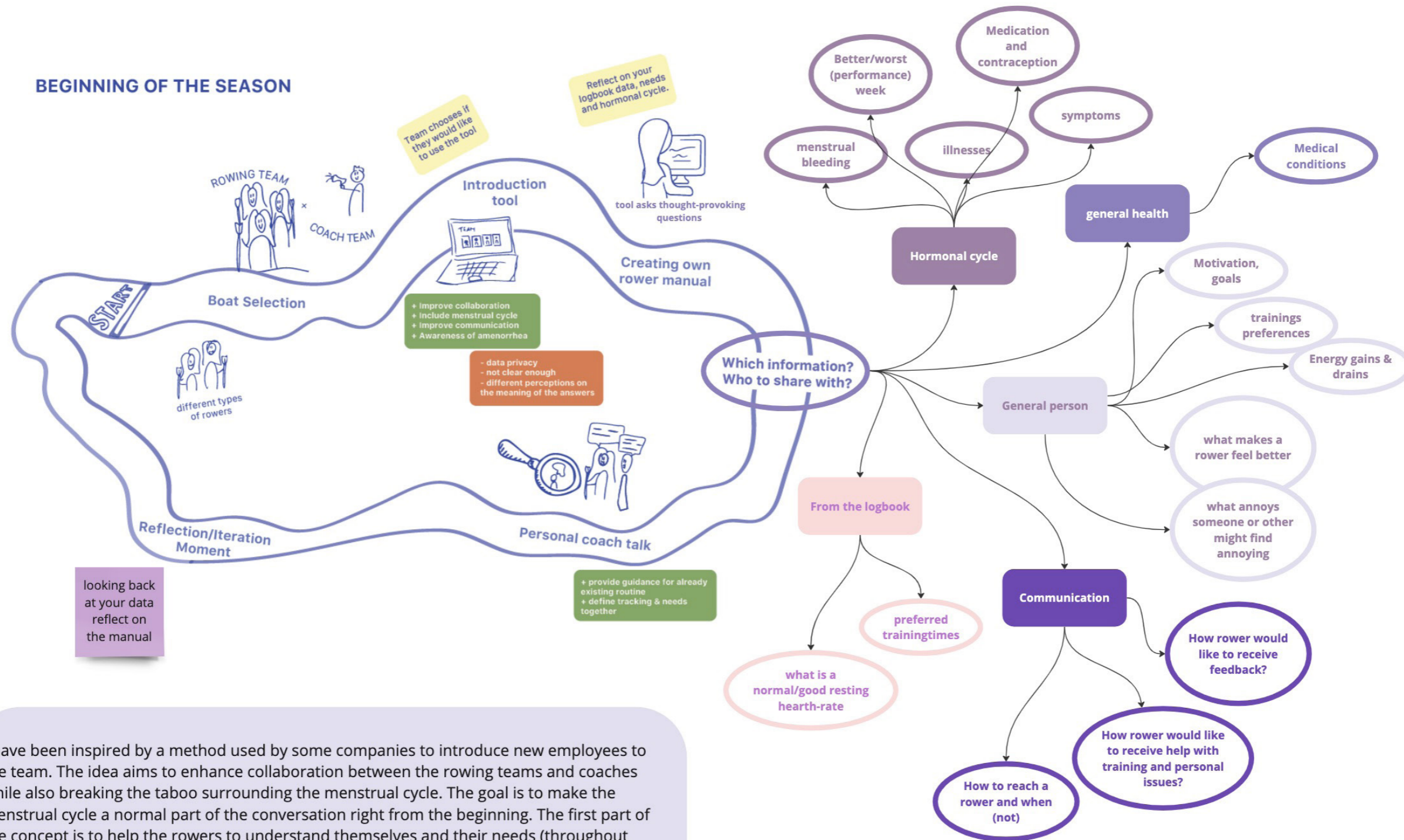
The aim behind the criminal role was to encourage fun and playful ideas. During the discussion, it was noted that criminals often have a trusted inner circle and create specific rules for communication, particularly when discussing sensitive topics. If criminals were to track something on a daily basis, it should be in a way that releases frustration or allows for discretion.

RESULTING IDEAS

THE PILL BOX

Criminals might rely on pills to enhance their performance. They can track their well-being by using a box with a designated pill for each day. If they need assistance to perform, they can take a specific pill to, for example, relieve pain. This tracking concept could be adapted for rowers as well. They can create their own personalized treatment box with items representing various symptoms to track. The box would be equipped with sensors to monitor when an item is removed. Alternatively, the box could serve as a collection box, representing the menstrual cycle. Each compartment of the box would correspond to a day of the cycle, and instead of taking a pill, the rower would add an item symbolizing the factor they wish to track.

09 OTHER CONCEPTS



I have been inspired by a method used by some companies to introduce new employees to the team. The idea aims to enhance collaboration between the rowing teams and coaches while also breaking the taboo surrounding the menstrual cycle. The goal is to make the menstrual cycle a normal part of the conversation right from the beginning. The first part of the concept is to help the rowers to understand themselves and their needs (throughout thought-provoking questions in the manual and by looking at the logbook) and Then the rowers are able to share this with their coaches to take it into account. Giving also the opportunity to the rower to decide to not share specific information but then the coach can also not take it into account

Considering the sensitivity and privacy of this information, rowers would have the freedom to decide whom and what information they choose to share with their personal coach, coach team, and rowing team.

09 OTHER CONCEPTS

Phygital tracking game



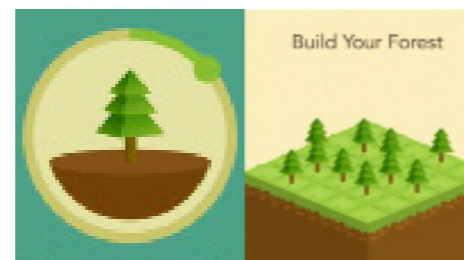
The individual tower

The phygital game allows the individual rowers to track their personal wellbeing over the time of their cycle. Every day the rower selects a building block representing their mood or another factor (asked in an abstract way.) Building a tower throughout their menstrual cycle. This is done in a physical way as it allows the individual to deeper connect with themselves and doesn't incentivise and rely on smart phone use.

Phygital tracking game

The collective city

The individual towers of the rowers (and maybe the coach as well) from the team are in real time visualised and updated on a website. This allows the team to see the overall cycle status and wellbeing status.



10 WORKSHOP 3

WORKSHOP 3: FINAL DESIGN CONCEPT

ACTIVITY	GOAL	TIME	REFLECTION
Introduction	The introduction aimed to motivate the participants and encourage them to generate ideas for desired changes or improvements that would make their lives easier and more enjoyable.	5 MIN	
Ice Breaker: Circle of Support	The Ice-Breaker activity acted as a means to directly delve into the topic. Participants shared their personal perspective on how the menstrual cycle affects them and something new they had learned from the individual sessions.	10 MIN	Providing everyone with the opportunity to speak up from the beginning was valuable. Since most participants did not have a design background and were not accustomed to rapid thinking and openly sharing their thoughts, I had to ask several questions to facilitate the process.
Brainstorming on the analogies	To ensure the final concept builds upon prior research, analogies were used to prompt the brainstorming session. The aim was to generate ideas that incorporate the prior identified design features.	8 MIN/ROUND	Using analogies in the design process is familiar to designers but less so for others. I was glad to have prepared simple questions, such as asking about hobbies or daily routines, to explore the rowers' routines.
Clustering & voting with different heads	All the findings were put together aiming to form ideas out of them. To not forget the perspective of new rowers and coaches all the rowers had a "different head/role" to discuss which are the best ideas.	15 MIN	Initially, I expected many ideas, but the outcome was diverse aspects needing formation. Creating clusters and giving them titles formed a cohesive concept.
Storyboard	The final activity of creating a storyboard enabled us to specify precise elements such as timing, location, and target group. Additionally, it helped consolidate all the ideas into a cohesive concept.	25 MIN	This step was essential to refocus on the main goal of the session to generate a specific concept. Recording the session was valuable as it captured interesting details that came up during the conversation.

11 FINAL CONCEPT

GOAL

1. Help rower to gain an understanding of one individual factor to become a better athlete. Providing a reflections on how the cycle affects her
2. Provide a space for rowers and coaches to talk and support those that need help. By providing a guide for the conversation.

1.



Education Video why is relevant to take the menstrual cycle into account and use the design

introduce the 6 tracking goals and what one can learn from them




expert videos about the individual aspects

- EMMA
- RED-S
- Nutritionist
- psychologist
- emma

2.

Rower selects one of the predefined goals to understand a correlation with the cycle.



3 daily questions to track the metrics

- quantitative data (eg hearth-rate)
- qualitative data (perceived performance) How was the training today?
- changing question

For each objective consult with expert


- Performance / heart-rate
- lack of Menstrual bleeding / RED-S help
- Weight fluctuation /Eating behavior
- Motivation / energy level
- Sleep / Recovery
- make up your own

3.

Visualisation of the data

- should provide an overview of how the data is connected with each-other and the cycle
- maybe in form of a calendar

4.



Guided reflection conversation with coaches

- Ask the experts what coaches should ask about the metrics
- Tool that guides an interesting conversation

Tool should guide an interesting conversation to not make the rowers feel uncomfortable to share

Conversation tool could help to make it less uncomfortable for the rowers to share and talk so much about themselves.

To be successful in this type of conversation tool, it needs to be designed in a way that is not too long and not too complex. It should be easy to use and not too complicated. It should be designed in a way that is not too long and not too complex. It should be easy to use and not too complicated.

Video Preparation for goal setting

Goal behind video
Clarify why should they participate?

To prepare the rower upfront the reflection conversation moments and make aware of the purpose
A blended learning tool that prepares the rower for their conversation with their coach. Watch a video or and then the teacher can help you with the questions that comes up that might help guide that conversation.
3.3: I would be really nice to have sort of a tool that prepares the rower for their conversation with their coach. So even if they can have blended learning where you have to watch a video or and then the teacher can help you with the questions that comes up that might help guide that conversation. And then similarly, it could be like, some exercises you can do to become aware of yourself before sharing that with the coach who can maybe use that conversation. Now, that can be understanding your the influence of the menstrual cycle on you, it can also be understanding the communication preferences. What how you would want that interaction to happen with a coach.

goal behind tracking be aware of how you treat your body
She tracks because she wants to be aware how she cares for her body
yeah, my heart weighed. Yeah, because also of my medical background is really interested and interesting to see. And also, because of tracking, I am much more conscious about how I'm caring for my body. Like, I try to fill my logbook every, every day or every other day. And that sometimes, and that is mostly in the periods, I'm caring a little bit less for my body. I need to fill in the days at a time or seven days.

First step of the design should include a reflection of the past year. And help the rower to formulate goals.
coaches should know the training history, rowing goals, academic commitments and personal goals. But some specific questions like what gives or takes energy might be hard to answer for a rower.
I think they should know your training history because otherwise they also can't really understand the load you can have. And then there, like in the beginning of the season, yeah. And also the rolling goals for sure. And also personal goals, because, again, it's really about but like, knowing what gives me energy and what drains me energy also requires you to know it. Yeah, I'm not always sure I know how to express it. Yeah, Yeah. And also academic commitments? Sure.

Being able to learn something/ doing it for future julia motivates
the data should not tell upfront how you are suppose to feel but after entering the data it could indicate eg don't worry it could be because of...
I think like some aspect like it's a balance between you and you maybe see what could be expected on the day. But you also don't want to force you to feel better on a day like like the data could say that's today might be a day with lower energy. But you also don't want it because it's just it you want to say after work yeah, maybe yeah you're right yeah. You want to know to use it as an excuse upfront yeah. So maybe if you feel in your year How did you feel today? It's good say like Don't blame yourself this day that's good happened.

Coaches need to inform rowers about the importance of having a cycle and should therefore keep that in mind with the goals. (female goal should ask
If coaches are not asking and informing the rowers about irregular cycle then rowers might not be aware of the health risks
Yeah. And yeah, I am because of my sister who has been a lightweight rower I have also a little bit more knowledge about my body already. What's not had to deal with it already so I know my sister her menstrual cycles also a little bit of time but she didn't know it was really bad for her because then at the time the coaches or anyone didn't ask people about their menstrual health so at a certain point she went to my mom like this is happening and it was already off think for six months so my mom was like it is very healthy healthy to go to the GP and then she was also like, be prepared for the question if you're not pregnant my sister No no no I'm not pregnant.

The main goal of coaches and rowers is to become the best sportswomen they can be. Everything they do is to achieve this goal so make it about that.

Adress in the design

First years should have rather a current check and track how they are changing.
The bodies of new rowers are changing a lot and undergo a bit of a shock as a lot of rowers haven't been so active before. Therefore coaches should ask them to track the changes.
Well, I think it is really important to know how your cycle was before you started training heavily. So at the beginning of a selection, maybe of STRS through yours, coaches could already ask for their rowers to write that one somewhere. What their natural body habits were, like they do don't need to share it already with the coaches, but so you have a basis of knowledge. Because I talked also with my physiotherapist, and he was like, it is such a shock for your buddies that most of the people are we're not really much of a sport or before getting into the wettest rowe

coach should ask if rowers want to participate not mandatory
Coach should ask rowers if they would like to have the conversation without forcing it
32.00 It's really about asking if the rower like, it could be nice if the coach would ask the rower if they want to have this conversation, because then you don't force it, the conversation upon them. But if they want to have that conversation, it could be possible now, but yeah. And do

There needs to be a reflection moment in the first meeting to have a look at data & last year
there is no reflection of last year yet so if you don't have the same coaches they miss relevant information like injury history they should reflect
I don't think I have ever reflected on my data

can adjust training

Tracking

Goal behind the tracking

Logbook should be motivational, showing process rather than feeling judgemental and boring.
Current logbook is boring. It would be nice if it would be more motivational focussing on the good things like you achieved this many kilometers. It shouldn't feel judgemental.
16:04 And if you could, like, if you could change the logbook, and have it show your data, what would you be interested in hearing from them?
I think more motivational. I really like seeing sort of you've already achieved this many kilometers, or you have been keeping consistent with this. And this is more emphasis on the good rather than the bad, because then it can also feel a judgemental. But right now, it's really like, really? Yeah, it's almost a bit too boring.

to make data more positiv by showing achievements eg strikes
The bobbles are a bit overwhelming. She would like to see more statistics on general amount of training or achievements.
16:02 I'd like to see more of a bit of bubbles. Yeah. And maybe all the bubbles make it a bit unclear to me. Yeah. Yeah. Because I keep you. A bit like too much. Yeah, I can imagine. Yeah. But can imagine that if there could be very short descriptions or bit more summarized, more like achievements

goal behind tracking be aware of how you treat your body
She tracks because she wants to be aware how she cares for her body
yeah, my heart weighed. Yeah, because also of my medical background is really interested and interesting to see. And also, because of tracking, I am much more conscious about how I'm caring for my body. Like, I try to fill my logbook every, every day or every other day. And that sometimes, and that is mostly in the periods, I'm caring a little bit less for my body. I need to fill in the days at a time or seven days.

how to track

Ask a question to easily fill in rather than excel sheet
Current logbook doesn't remind rowers to fill it in. Would be nice if it would ask questions when she wakes up and reminds her to fill the data
16:06 It would be kind of cool if you could if it would ask you a question. And you can easily fill it in. Rather than that you have to sort of like a pop up with a question. And you just fill it in as you wake up. And then you have a done sort of it maybe a reminder, because now sometimes also can feel like, oh, she, I still have to fill it in. And I have to fill all the data points. Yeah, and then you could you can forget about it for a week. And then if you forget about it for a week then you might about it for two weeks. Yeah, it's too much work to fill in, in some points.

are there good moments when rowers are bored to fill the logbook?
When she is having a dip or is bored in uni she fills her data from her Garmin watch
Mostly during college? Board around from have broken then I'm getting a dip. And then the like, oh, I couldn't fill it. The filling part would be three minutes and then looking into it and then I'm stuck at it for a few more minutes

next to your keys or charge the phone
can the tracking be somewhere fitting their routine like where they place the keys to hand something on there or where the charge the phone?
yeah, hi, yeah, just my key on the same hook every time but I always when I wake up go to the bathroom and I might forget!
Always put my phone in the charger!

next to your keys or charge the phone
can the tracking be somewhere fitting their routine like where they place the keys to hand something on there or where the charge the phone?
yes, you like to Duetting style app, to help when you have like the the hallway the pathway or something he just or maybe on your phone, which again, you just don't even have to open an app, just put these things and then you

Adress in the design

Busy times leads to incomplete tracking. How can this be done in a more valuable and simple way?
When she was too stressed she stopped recording. Its important that the tracking is done in a way that it is manageable and valuable also in busy times.
15:17 stopped recording like I mentioned something about my stress level
Yeah, because it's normal also to have of course you are very stressed that it's like the story or what's really Yeah.

When she forgets to fill it in it becomes too much work to do it later reminders are relevant
Sometimes she forgets or has not the time to fill in all the data points and if she forgets about it for some weeks it becomes too much work.
16:00 And then you have a done sort of so maybe a reminder, because sometimes also can forget about it. Oh, she, I still have to fill it in. And I have to fill all the data points. Yeah, and then you could you can forget about it for a week. And then if you forget about it for a week, then you forget about it for two weeks. Yeah, it's too much work to fill in, in some points.

Maybe start with lesser and let rowers extend the amount of parameters to track
As a new rower it's pretty overwhelming but it can be really nice to extend later the tracking
I think that could be really overwhelming someone, but if you remember that one of your teammates has just started tracking. And if you get the feeling like it's really important for your body to track everything.

focus on the individual not the team
if you track as a team it feels less insightful for the individual rower and more for the system
Yes, There it was feel less less insights into me the more they track. The system. Yeah.

Not more then 5 questions to answer
Not more then 5 questions!
and but there's there shouldn't be like 20 questions. No, just five. Five, five maybe? Double like a really, so I really don't want to answer. That's about the biggest thing trying to maximum of five questions, making a table, like.

when

at the end of the day is a better moment to track and not in the boat because there is no phone
when you get out of the boat you don't have your phone with you and when you track in the morning then you can't say a lot about the rest of the day
Yeah, in order to correct that, you need to ask the right questions, and you need to fill it in, I think
Yeah, but you don't have your phone with you when you get out of the boat. So then you would have to remind or get the phone, yeah, you set up a reminder for that and then in the morning, then it's hard to say how you feel about the whole day. Because the day hasn't passed yet? Yeah.

choose your own time to track & be notified.
to encourage good tracking let them choose the notification time
Maybe you can set the time yourself. So maybe you're choosing a notification time. Morning? Yeah
they you get a notification always at that? I don't know if you're always drinking coffee. Well, that's also too good for your heart.

keep motivating

Being able to learn something/ doing it for future julia motivates
the data should not tell upfront how you are suppose to feel but after entering the data it could indicate eg don't worry it could be because of...
I think like some aspect like it's a balance between you and you maybe see what could be expected on the day. But you also don't want to force you to feel better on a day like like the data could say that's today might be a day with lower energy. But you also don't want it because it's just it you want to say after work yeah, maybe yeah you're right yeah. You want to know to use it as an excuse upfront yeah. So maybe if you feel in your year How did you feel today? It's good say like Don't blame yourself this day that's good happened.

Goal behind tracking can be to see your progress and how WELL you are doing
she is insecure about her abilities and tracking and seeing progress helps her to prove herself that she is doing really well.
What I did during the training was mostly because I remember that one of your teammates has just started tracking. And if you get the feeling like it's really important for your body to track everything. I think that could be really overwhelming someone, but if you remember that one of your teammates has just started tracking. And if you get the feeling like it's really important for your body to track everything.

positive peerpressure to fill in the data.
Reminder that teammate filled in the sheet. Or the other way around you can remind that team mate to fill it by sending a foto
Maybe if you weren't there, then in your sheets that day, you remember that one of your teammates has just started tracking. And if you get the feeling like it's really important for your body to track everything.

collecting streaks or having flashbacks to motivate continuous tracking
A reward when one fills in the data to receive a flashback foto from the last year. Motivating to have streaks
I think maybe reminders of the summer season can also be nice. It's like that you could you think in for seven days, you get a photo or picture from last year.

With every tracking a clear goal needs to be set to stay motivated
Having a clear goal helps in harder times like the winter to stay motivated
yeah, it's clear goal! I don't like giving I like to have something that work towards it. Just makes the bit harder winter months makes makes it easier to get through it if you're really working towards like one race or stuff you want to achieve during season so that really helps to keep the motivation up in the winter as well.

How can the answering the questions be likable? Maybe by changing the way they are being asked!
What motivates her in studies is that she likes to read about it. So how can you make tracking "likeable"
and also just like most things do with study so that's that's also if you don't have a clear goal

Maybe a nudge to inform then that the teammate filled the data today or achieved a goal to celebrate
Social interaction and working together in a team that motivates. Do it for the other person.
And then maybe like, there's all sorts of social interaction because then you Yeah, then when if you're, you don't really have to force you to feel better on a day like like the data could say that's today might be a day with lower energy. But you also don't want it because it's just it you want to say after work yeah, maybe yeah you're right yeah. You want to know to use it as an excuse upfront yeah. So maybe if you feel in your year How did you feel today? It's good say like Don't blame yourself this day that's good happened.

positive peer reminder to track your data
when your teammate didn't fill it in send her a flashback to remind her in a positive way
should also be that you get a notification about the peer pressure that you get a notification that your teammate hasn't been filled in. It's like you can send them a flashback or why they should fill it. So it's like, you can remind like, you training! Yeah, yeah, if you're in the boat with someone else, then you're going to regret afterwards for the other person.

if they regularly track throughout the year the have a full fotoalbum
the more you track the more exciting is the overview at the end
Yeah, I really like to consider with them. Videos, or photos or something. So, yeah, he's really nice to send sheet. And more personal than just numbers. Yeah
And then it could also be that, I mean, you put so much time and effort into this activity. That's really like sort of the photo album that you can have at the end of your Yeah, I think that's also sort of maybe reflects that a bit!

GOAL Setting

Goal behind goal setting

Menstrual cycle information needs to be connected to a clear goal.
To share menstrual cycle information is to connect it to a clear goal rather than just having over the data.

Understand changes by reflecting on current and past self.
What about the reflecting on the past current and future self?

Goal let rowers understand themselves and then share with the coach. Right before the reflection is a more individual reflection.
Change influence on the rowers posture themselves is relevant to make the coach aware of their being wrong.

Less goals are more concerning.
By focusing on a specific goal rather than a set of things you become more efficient.

Freshman track with the goal to make sure they are doing it with the coach. Right before the reflection is a more individual reflection.
Freshman track things for the coach to see if they are not doing something or if they take care of their own.

Best performing with healthy cycle.
With a normal cycle rowers are on top of their performance.

Proof if perceived increase in strength is also real strength.
Are rowers also really stronger when they feel stronger during their menstrual cycle?

proof new insights
When rowers know and understand the origin of their symptoms they can accept them rather than fight them. The rowers themselves but also the coach can plan accordingly and rowing suffer less.

understand the origin of symptoms
The rowers become aware of themselves and their feelings. Because when they are not feeling they can be more productive.

Teaches athletes to perform with but feeling by accepting them rather than fighting them.
The rowers become aware of themselves and their feelings. Because when they are not feeling they can be more productive.

Weight fluctuation /Eating behavior

less stress for races, be prepared

Individual ROWER DATA SESSION

understand weight fluctuations as a goal.
For her not connecting goal to understand when her weight fluctuates and how she can be prepared for her cycle, food did not help.

weight fluctuations can have a mental impact for eaters and stress.
As a lightweight rower who already is on the scale with her weight she gets nervous when she is on her period.

look at the different aspect that correlate with nutrition.
when she is heavier and not feeling well she has a higher heart rate.

lower self-esteem due to cycle symptoms like gain in weight.
low diet and being blood makes her have lower self-esteem. Instead of eating less.

Motivation / energy level

know how you are overall doing

Individual ROWER DATA SESSION

The motivation scale.
The motivation scale is used to measure the level of motivation and energy level.

The motivation scale is used to measure the level of motivation and energy level.
The motivation scale is used to measure the level of motivation and energy level.

energy level - goal to see amount rowing.
The energy level is used to measure the level of energy and motivation.

this can be an indicator for row if you are not having enough motivation.
The energy level is used to measure the level of energy and motivation.

Performance /heart-rate

know when you need more time to recover

Individual ROWER DATA SESSION

lower pace and lower heart rate during period interesting to understand.
The correlation between heart rate and pace is interesting to understand.

increasing for reflection moments or to keep to mind what the overall conditions were for a race despite better than the rest.
During her period she had a better race than the week after wasn't aware of that.

heart rate and cycle interesting correlation explore.
The correlation between heart rate and cycle is interesting to explore.

From an athlete perspective comparing the performance of two race the cycle could be an indicator.
The correlation between heart rate and cycle is interesting to explore.

Sleep / Recovery

know when you need more time to recover

Individual ROWER DATA SESSION

Correlation sleep heart rate.
The correlation between sleep and heart rate is interesting to explore.

correlation between sleep and weight.
The correlation between sleep and weight is interesting to explore.

can I gain muscle?
The correlation between sleep and muscle gain is interesting to explore.

when understanding sleep pattern it can be helpful, quality and low energy.
The correlation between sleep and energy is interesting to explore.

Menstrual bleeding fluctuations / RED-S help

get it back on track by understanding the course/conditions

Individual ROWER DATA SESSION

Track people that lose the cycle and be people explain the positive effects the cycle can have.
The correlation between menstrual cycle and performance is interesting to explore.

Reflecting on wellbeing after a season to be in her opinion the most important thing to track.
The correlation between menstrual cycle and wellbeing is interesting to explore.

Most lightweight rowers have amenorrhea.
The correlation between menstrual cycle and amenorrhea is interesting to explore.

menstrual irregularities are common.
The correlation between menstrual cycle and irregularities is interesting to explore.

cycle irregularities because of low muscle energy expenditure and low intake.
The correlation between menstrual cycle and irregularities is interesting to explore.

pain?

be prepared and able to better communicate your needs

Individual ROWER DATA SESSION

water retention and a feeling in the back is something to notice.
The correlation between water retention and back pain is interesting to explore.

menstrual pain influence on the posture during rowing.
The correlation between menstrual pain and posture is interesting to explore.

Sport to lower MC pain look into it.
The correlation between menstrual pain and sport is interesting to explore.

Freshman

see if they are not doing well and if their bodies are coping with the new cycle

Individual ROWER DATA SESSION

goal setting moment should be before selection.
The correlation between goal setting and selection is interesting to explore.

menstrual pain influence on the posture during rowing.
The correlation between menstrual pain and posture is interesting to explore.

Birth control changes?

clarify that its also ok to have other individual factors

Individual ROWER DATA SESSION

Birth control changes?
The correlation between birth control and performance is interesting to explore.

clarify that its also ok to have other individual factors.
The correlation between birth control and performance is interesting to explore.

INTERVIEWS

Stress due to the increasing weight the days before the period starts.
Her weight increases the days before her period starts. It is not so much for her weight but for her not feeling well.

Daily weighing is not good for your mental state.
She doesn't weigh herself every day because she feels a bit more nervous for her menstrual cycle.

Lightweight rowers have a problem with weight changes due to cycle.
Lightweight rowers have a problem with weight changes due to the cycle. They can be very stressed.

look at correlation of the MC and the nutritional behavior (rather than).
The correlation between the menstrual cycle and nutritional behavior is interesting to explore.

Change in hunger and eating behavior during the cycle.
They asked her to track data and her coaches can also see all the data.

Athletes are maybe not aware of their changes in eating behavior during the cycle.
The correlation between the menstrual cycle and eating behavior is interesting to explore.

INTERVIEWS

Best mood the days before period.
The days before the period she feels her mood is better because she is not feeling well.

correlation between being sad and cycle.
The correlation between being sad and cycle is interesting to explore.

different parts of cycle can be for some very different experience.
The correlation between different parts of cycle and experience is interesting to explore.

Head is especially after row.
The correlation between head and rowing is interesting to explore.

performance and mood are correlated to each other.
The correlation between performance and mood is interesting to explore.

reflexion and wellbeing dependent on general and more factors.
The correlation between reflexion and wellbeing is interesting to explore.

Both that reflexion and generally wellbeing is a feeling they feel not really good of the data.
The correlation between reflexion and wellbeing is interesting to explore.

Tracks heart rate, sleep, and subjective rating of the rowing.
The correlation between heart rate, sleep, and subjective rating is interesting to explore.

Postage is the main part being to track.
The correlation between postage and tracking is interesting to explore.

correlation of wellbeing and performance.
The correlation between wellbeing and performance is interesting to explore.

INTERVIEWS

is there influence of the cycle on the sleep quality?
She doesn't know about research on the influence of the cycle on sleep quality.

Sleep and recovery most important for athletes.
Sleep and recovery is the most important thing for athletes.

recovery time is already looked at from the data reflection.
The correlation between recovery time and data reflection is interesting to explore.

Sleep and recovery most important for athletes.
Sleep and recovery is the most important thing for athletes.

INTERVIEWS

47% irregular menstrual bleeding.
The correlation between irregular menstrual bleeding and performance is interesting to explore.

INTERVIEWS

menstrual pain & strong bleeding.
The correlation between menstrual pain and strong bleeding is interesting to explore.

Sport to lower MC pain look into it.
The correlation between menstrual pain and sport is interesting to explore.

INTERVIEWS

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menstrual pain & strong bleeding.
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Sport to lower MC pain look into it.
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SURVEY

75% experience of the rowers water retention.
20% everyday
20% usually
22% sometimes

SURVEY

70% Psychological symptoms (feeling down/overwhelmed).
11.20% every time
31.30% usually
27.71% sometimes

57% have to concentrate.
4.02% every time
16.87% usually
38.10% sometimes

SURVEY

71% experience some kind of sleep symptoms.
12% feeling big yawns (larger than usual)
20% poor quality of sleep
17% difficulty falling asleep
17% waking up frequently

SURVEY

47% irregular menstrual bleeding.
9.68% every time
16.27% usually
22.28% sometimes

SURVEY

Survey results types of pain.
71% Fatigue: 9.68% every time, 16.27% usually, 22.28% sometimes
71% Head problems / Dizziness: 6.63% every time
68% Stomach pain: 22.29% every time, 26.17% usually, 19.29% sometimes
61% Backpain: 13.17% every time, 21.75% usually, 21.75% sometimes
49% Headache: 4.22% every time, 8.64% usually, 24.31% sometimes
49% Painful periods: 9.68% every time, 16.27% usually, 22.28% sometimes
30% Severe menstrual bleeding: 7.28% every time, 16.27% usually, 22.28% sometimes
16% Nausea / Vomiting: 8.10% every time, 1.21% usually, 14.63% sometimes
71% Other symptoms not mentioned: 1.62% every time, 4.65% usually, 18.28% sometimes

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9 Self-Esteem Questionnaires (+Rosenberg Self-Esteem Scale)
The Rosenberg Self-Esteem Scale is considered by many to be the ultimate self-esteem scale. We look into why this is, and alternative scales to consider.

Self-esteem is defined as the emotional evaluation of one's own behavior, traits and characteristics (Brown 2007). It reflects positive and negative attitudes toward the self (Rosenberg 1965).

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how

when

keep in mind

start by asking guiding questions about the year before.
Reflecting on last year especially if there is a new coach. Set the overall rowing season.

by asking defining an end time for goal setting.
Define for how long you want the goal to last to learn about your goal.

what is your goal and what might hold you back and what should keep you.
After you have things that stand in my way to achieve that goal as a way of reflecting on your past year.

make a standardized goal setting benchmarks.
What do you want to do this year, what do you want to achieve a solid right benchmark with a number benchmark.

By providing standardized goals to choose from.
Don't be afraid to define a goal for yourself. It's better to choose from your own.

Freshman have only the goal to make it in a boat.
First year goal is just to be part of the team second year is to be a good and a result goal third year is to be a coach.

Personal development plan, conversation with the coach for the design.
Personal development plan, conversation with the coach for the design.

goal setting moment should be before selection.
The best time to set a goal is before selection (April) and only then you have the goal setting to the individual rowers are better.

goal setting moment should be before selection for the development team.
The best time to set a goal is before selection (April) and only then you have the goal setting to the individual rowers are better.

Freshman have a different start date for training.
The best time to set a goal is before selection (April) and only then you have the goal setting to the individual rowers are better.

Set coach meeting after the holiday 1-2-1 conversation.
After the holiday the first coach meeting is the right moment to set a goal.

Visualisation

Goal behind the visualisations

Design and the data should provide feedback and an overview and correlations allow to recognise patterns

Design should show an overview and the correlation between the different things tracked. Data should provide feedback

Something more inspiring than just an excel sheet. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

what are nice visualisations for the data. Trends could be part of the design

She changed a heatmap colors and a diagram for max heart rate of training. Trends are nice.

Others that I'm having a really nice heatmap. It's changed a heatmap colors and a diagram for max heart rate of training. Trends are nice.

connect to other things

Rowers connect activities to other things like events that happened or feelings

Specific activities (running) indicate in the data that she is busy or away and can't practice rowing.

012 And then she said it's interesting. And then I thought about it. It's interesting. And then I thought about it. It's interesting. And then I thought about it. It's interesting.

design ideas

Put the tracking data in correlation with the videos coaches make

tracking allows her to understand the full picture when looking at the videos coaches make and share mostly later

What I did during the training was mostly being in the water. And then I really didn't know what was going on. I was just following the coach's instructions. And then I really didn't know what was going on. I was just following the coach's instructions.

design ideas

Training videos to reflect even more on the training

Connect the data points also with the videos and other events

Our coaches also sometimes film our training. And it's also interesting to see what they're doing. And it's also interesting to see what they're doing. And it's also interesting to see what they're doing.

design ideas

connecting events and fotos helps to remember

Connecting to races and fotos helps to remember and feelings

Yeah, that's beautiful. That's an important moment. It's beautiful. That's an important moment. It's beautiful.

design ideas

calendar view visualisation

put the data of the question in a calendar view with background fotos of that day

Yeah, that's beautiful. That's an important moment. It's beautiful. That's an important moment. It's beautiful.

design ideas

a pathway towards the reflection moment

a process indicator like a pathway towards the goal

And this is also nice. It's a good idea. It's a good idea. It's a good idea. It's a good idea.

design ideas

connect the fotos and the data towards a memory book of the year

by connecting it to fotos to just have a kind of year book in the end of the year

Yeah, I think that's a good idea. It's a good idea. It's a good idea. It's a good idea.

Individual Rower Reflection

Goal behind the reflection

Before the reflection with coach a rower should have an individual reflection

Rowers need to first track and understand themselves their menstrual data before they can share it with other coaches might interpret wrong things.

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

Logbook data needs to always be seen in context. Coach should not interpret it without the rower.

Logbook data is overwhelming and coaches should not over interpret it because the data needs to be seen in context and in conversation. Eg a "normal" heart rate is different for everyone

012 But if you don't want to over interpret it's a coach because you can't get it right. You can't get it right. You can't get it right. You can't get it right.

design ideas

would be good if you can look at the end of the year and see what you have achieved or even over the years.

A couple of years back she would have not believed that she was able to have this performance that she tracks now.

And if you look at the end of the year. It's a good idea. It's a good idea. It's a good idea. It's a good idea.

design ideas

how

set reflection moments and get a reminder with data to also really have them

if you plan the reflection moments at the beginning of the year and you get a reminder maybe with the data summary then that would be encouraging to do so

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

or maybe send a reminder with the initial goal?

if you plan the reflection moments at the beginning of the year and you get a reminder maybe with the data summary then that would be encouraging to do so

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

by letting rower also select which information they would like to share

let them select the data points they would like to share

Yeah, maybe you can take the calendar with you. Or you can take the calendar with you. Or you can take the calendar with you. Or you can take the calendar with you.

Adress in the design

How can I support athletes in acknowledging that not everything is fine?

She describes that it can be hard for athletes to acknowledge that sometimes things could be off with their bodies and they need to change.

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

For the reflection moment how can I think of this aspect that some rowers fear to share

When you tell things to your coach you know it will have consequences. Therefore it is sometimes hard for rowers and they hesitate.

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

Athletes don't like to complain and fear consequences of talking how to address that in the reflection?

She tries to tell everything but she notices that she also keeps things or hesitates to tell. She doesn't want to come across like a complainer and fears consequences

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

in the reflection moments make rowers aware of what are abnormal things in their data

How can I provide them with a baseline of what is normal and what is abnormal the "redzone" to create knowledge and awareness on what is good or not, maybe in the reflection moments

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

Coach Rower Reflection Moment

Goal behind the reflection

Coach should be aware of the amount going on at a rower to be aware with her performance

She would like her coach to be aware of the amount of bowls she currently has to juggle to keep that in mind in correlation to her performance

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

when

Once a month is a coach meeting moment to plan the month ahead could be interesting to look at the when

every month coach meeting moment to plan the coming month.

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

After race and practice could be reflection moments

after each race you reflect on performance and after each practice you could have a short reflection

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

reflection moments need notification to be also happening

Now the reflection moments never happen so when they are arranged a notification on that they should be set reminding everyone maybe with a summary on the data

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

Tool should guide an interesting conversation to not make the rowers feel uncomfortable to share

Conversation tool could help to make it less uncomfortable for the rowers to share and talk so much about themselves.

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

When analyzing together try to understand the outcome symptoms

explain the phases more in detail and why specific occur.

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

Adress in the design

Can the reflection also have a so what how to change habits based on it

if she notices she is sleeping less than she should, she reflects on how she can change her habits.

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.

design ideas

Interesting for reflection moments or to keep in mind what the overall conditions were for a race maybe better than how well

During her period she had a better race then the week after not aware of that

It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard. It's not very clear. It's just more. Don't make it too busy. Look more like a dashboard.