



Effects of sleep education and training rescheduling on the sleep and swimming performance of elite adolescent athletes

ATHLETE INFORMATION SHEET

Introduction

- The aim of this study is find out about junior swimmers' sleep and swimming performance.
- You are at a stage in your life where your body naturally wants to go to sleep later and wake up later.
- Science tells us that your early morning training schedules might be cutting your sleep short. This can affect your health and may affect your ability to do your best in the pool.
- Our plan is to teach you some more about sleep, and to reschedule some of your morning training later in the day to see if we can improve your sleep.

Project Description

- We will monitor your sleep for eight weeks. To do this, you will need to fill in a daily sleep diary and wear an actigraph (a small watch that measures how much you move).
- Your performance will be measured by timing you in a race. You will need to swim a race during your Friday morning training session once every two weeks (five races over the eight weeks).
- The eight-week study will be broken up into two time periods. The first two weeks will be during your normal training and the next six weeks will be after we teach you about sleep and change your training times.
- A researcher will teach you about sleep at the beginning of the intervention. You will also receive a booklet with sleep information in it. Half way through the intervention, you will meet again with the researcher for another sleep lesson.
- The researcher and your coach will change your training times so that you have two mornings in a row without training. You will still train the same amount during the week, just at different times than usual.
- Your sleep and performance measures will be compared before and after you learn more about sleep and change your training schedule.

Participant Recruitment

- You may be invited to participate in the study after hearing about it from your coach or your parents.
- **Taking part in the study is your choice and no one can force you to be involved.**
- You can only take part in the study if you:
 - ✓ Are between (and including) the ages of 14 and 18.
 - ✓ Have been chosen to compete or have competed in a national level swimming competition.
 - ✓ Swim for Capital Swimming Club or Raumati Raptors.
 - ✓ Are not injured at the time of recruitment and attend 90% of their weekly training sessions.
 - ✓ Have not been diagnosed with a sleep or mood disorder.
 - ✓ Are not taking medication known to effect sleep.
 - ✓ Non-smokers

Project Procedures

- If you would like to take part in this study, you and your parents (if you are younger than 16 years of age) will have to give written consent using the form provided with this information sheet.
- All information you provide will be confidential. The research team (the people named at the bottom of this page) will give you a participant identification number that will be attached to all your data. During your data collection, we will use your name and your contact details (including phone and email) to stay in touch with you. Once you have finished data collection we will delete your contact information and only keep your participant ID number.

If you decide to participate, you will be asked to do the following:

Sleep measures

- You will need to fill in a questionnaire that will take about 15 minutes. The questionnaire collects basic information about: you (age, sex, information about your usual sleep and swimming, and contact details); whether you meet all the criteria for being in the study.
- You will meet with a researcher who will give you an actigraph, and a sleep diary and explain how to use them (photo of actigraph shown below). The sleep diary will also include a questionnaire to tell whether you are a morning or an evening person (your 'chronotype').
- You will need to wear the actigraph continuously (except when you are in contact with water for a long time, like during swimming or taking a bath/shower) and complete the sleep diary every day for 8 weeks.
 - The actigraph is the size of a watch and is worn on your non-dominant wrist. It measures movement, light, temperature of the actigraph case (to detect when it is worn), and keeps track of when you press a button (you're asked to press this when you get into and out of bed). The actigraph does not collect any other information and cannot tell the researchers what you are doing. It cannot transmit data until it is handed back to the researchers. When you return the actigraph, the information is analysed with a computer program to say when and for how long you have slept. The sleep diary asks when you try to sleep, how often you wake, and has space for you to rate how well you slept and any important notes, such as when you took the watch off.
- Every week you will receive a phone call, text, or email message from a researcher to check to see if you have any questions or need help with the study.

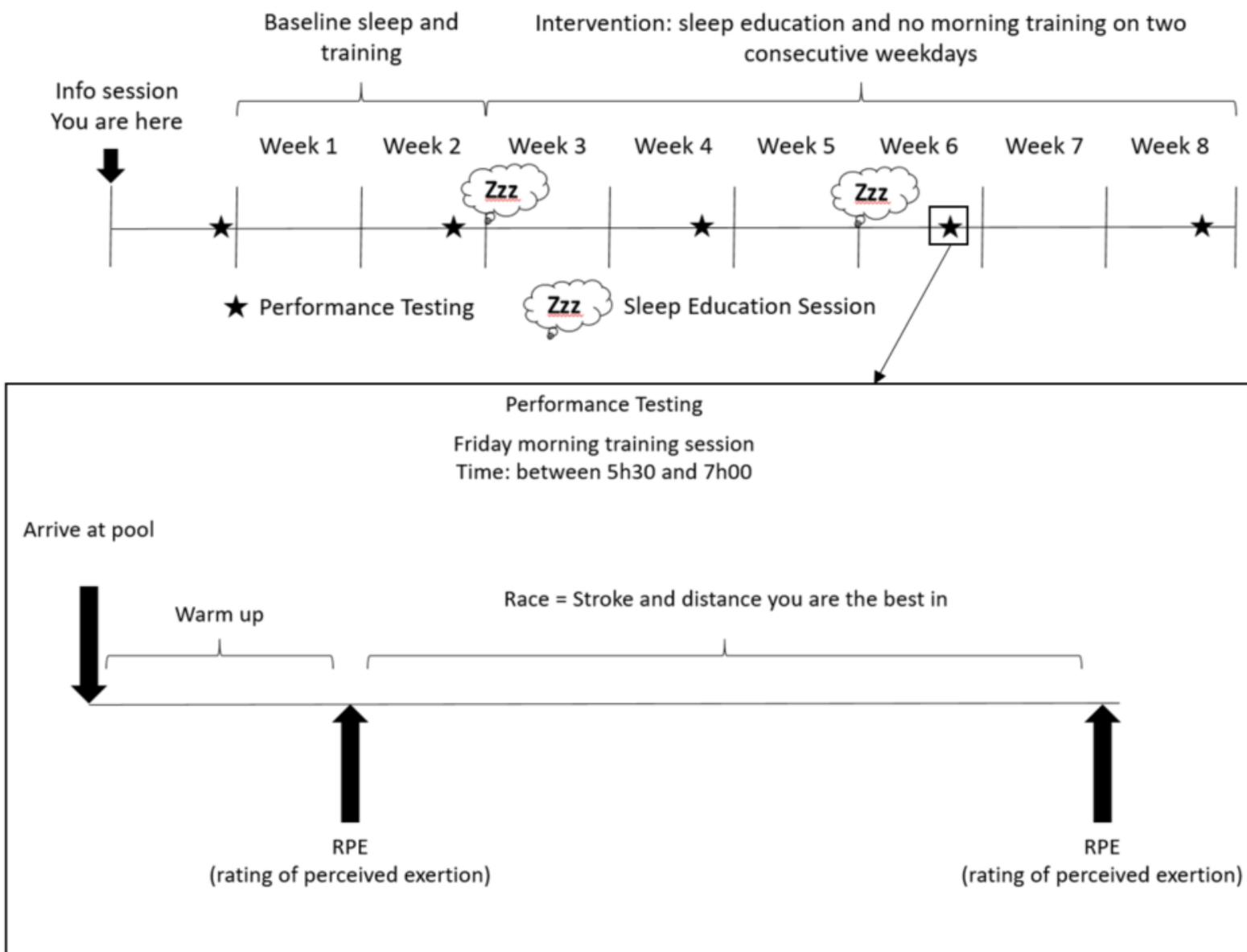


Intervention

- You will need to come to a session on sleep that your parents are also invited to attend. It will be a 45-minute talk where you will learn more about sleep, why it is important for your health and swimming performance, and ways to help improve your sleep.
- You will receive a sleep information booklet to keep. It will have the information from the lesson plus some extra details.
- Three weeks into the intervention, you will have to come to another session with the researcher. At this session, the group will get feedback on everyone's usual sleep. You will also get feedback on your own sleep (but this will not be shared with the group). At this session, you can also tell the researcher how the study is going and if you have any problems.
- After two weeks in the study, some of your training times will be changed to give you two mornings in a row without training. You will still do the same amount of training in a week, only the times of the training sessions will be changed.

Performance measures

- You will need to swim five races at training during the study.
- You will swim a race every two weeks during your Friday morning training session.
- Before each race, your coach will take you through a warm-up to get you ready (the warm-up your coach would normally do with you before a real race).
- The race you swim will be in the stroke and distance that you are best in (your coach will help you decide if you are not sure).
- Your race time will be taken and your performance will be compared over the weeks you are in the study. You will also be asked how your body feels (called a rating of perceived exertion) after your warm up and after your race.



Data Management

- Your sleep and performance information will be analysed by researchers from the Sleep/Wake Research Centre.
- None of the information collected will have your name attached to it. Instead, it will be labelled with an identification number. Your individual information will only be given to you and your parents (if you are under 16 years of age) and no one else will have access to your information without your permission. No information that could personally identify you will be used in any reports on the study.
- The findings of the study will be published in scientific papers and presentations and as part of Travis Steenkemp's doctoral thesis. You will receive a summary of the findings of the study and have access to this on the Sleep/Wake Research Centre website.
- You have the right to ask that any of your information only be used by the current study and not again in the future.
- All data will be stored in secure facilities at the Sleep/Wake Research Centre, Massey University. The signed consent form will be kept for 5 years then destroyed. Hard copy data will be kept for 10 years after the study has been completed then securely destroyed. Digital data (labelled with ID numbers only) will be kept indefinitely, or until you ask us to delete it. If you want us to delete your data, you will need to remember your participant ID number since it will not be labelled with your name.

Risks, Inconveniences, and Benefits

Risks. Taking part in physical training always involves the risk of injury. The study has been designed to try make sure that you are not asked to do more or less physical training than you would usually do in a week. Major increases or decreases in training, or when you are asked to do something you are not used to doing, are typically the most likely times for getting injured. For this reason, the performance test you will be asked to do is a swimming race in your best event. Being a national level swimmer, your body should be used to the stress a swimming race would put on it.

Inconveniences. Wearing the actigraph might feel uncomfortable at times. There is a chance that the watch might irritate you, especially at night if you do not usually wear a watch while you sleep. There is also a chance that the watch might irritate your skin. If this happens, let the researcher know as soon as possible. Filling in the sleep diary will take a few minutes each day across the 8-week study. The diary has been kept as short as possible to make it quick and easy for you to use. Changing your training times may also cause inconvenience to you or your parents. The change in times may mean that how you get to the pool and school will also have to change during the study.

Benefits. By being a part of this study, you will add to what we know about the sleep of junior elite swimmers. You will also have the chance to learn more about how your body works. You will learn about how you sleep, why sleep is important and how sleep is linked to athletic performance. Once you are finished with the study, you will get feedback on your own results (e.g., to see a chart of your sleep during the entire study). To identify your data, you will need to remember and give the researchers your participant identification number.

Compensation for Injury

If physical injury results from your participation in this study, you should visit a treatment provider to make a claim to ACC as soon as possible. ACC cover and entitlements are not automatic and your claim will be assessed by ACC in accordance with the Accident Compensation Act 2001. If your claim is accepted, ACC must inform you of your entitlements,

and must help you access those entitlements. Entitlements may include, but not be limited to, treatment costs, travel costs for rehabilitation, loss of earnings, and/or lump sum for permanent impairment. Compensation for mental trauma may also be included, but only if this is incurred as a result of physical injury.

If your ACC claim is not accepted you should immediately contact the researcher. The researcher will initiate processes to ensure you receive compensation equivalent to that to which you would have been entitled had ACC accepted your claim.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study at any time and take your data;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used in reports (a participant ID number is used instead) ;
be given access to a summary of the project findings when it is concluded.

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application SOA 18/36. If you have any concerns about the conduct of this research, please contact Dr Lesley Batten, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 356 9099 x 85094, email humanethicsoutha@massey.ac.nz

Project Contacts

If you have any questions about this project, please do not hesitate to contact the researcher:

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This study is being undertaken as part of the researcher's PhD. You may contact the project supervisors if you have any questions or issues with the study:

Primary supervisor: Associate Professor Leigh Signal T.L.Signal@massey.ac.nz

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