



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

### **PARENTS INFORMATION SHEET**

#### **Introduction**

- The aim of this study is find out about junior swimmers' sleep and swimming performance.
- Adolescents 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 their early morning training schedules might be cutting sleep short. This can affect aspects of health and may affect their ability to do their best in the pool.
- Our plan is to teach swimmers some more about sleep, and to reschedule some of your morning training later in the day to see if we can improve their sleep.

#### **Project Description**

- Your child's sleep will be monitored using diaries and actigraphy (small watch-like device to measure wrist movement) for eight weeks: two baseline weeks followed by a six-week intervention.
- During Friday morning training session at two-week intervals, he/she will swim a timed race in their best stroke and distance, with appropriate warm-up and supervision from the coach (five testing sessions altogether).
- The intervention will include two sleep education sessions and changes to the timing sessions.
- The sleep education will include a group seminar with the researcher at the beginning of the intervention; a sleep education booklet designed specifically for junior elite swimmers and their parents; and a follow up face-to-face meeting half way through the intervention.
- Training rescheduling will be arranged with your child's coaches, to allow him/her to have two consecutive weekday mornings free from training. This will give them a chance to sleep in while keeping the overall training load for the week the same.
- Sleep and swimming performance measures will be compared before and after the intervention period.

#### **Participant Recruitment**

- You and your child may be invited to participate in the study after hearing about it from your child's coach.
- **Participation is voluntary and there are no disadvantages if you choose not to participate.**
- Swimmers will be eligible to take part in the study if they are:
  - ✓ Between (and including) the ages of 14 and 18.
  - ✓ Junior elite swimmers who have been chosen to compete or have competed in a national level swimming competition.
  - ✓ Swim for a club whose coach is willing to be involved in the study.
  - ✓ 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 on sleep.
  - ✓ Non-smokers

## Project Procedures

- If your child decides to participate and is less than 16 years of age, they will only be allowed to do so if you provide written consent using the consent form provided with this information sheet.
- All information you and your child provide will be confidential and will be labelled and saved only with a participant identification number (not your names). We will use your name and your contact details (including phone and email) during data collection to stay in touch with you, but once we have finished data collection we will delete your contact information and only keep your child's participant ID number.

If your child decides to participate, they will be asked to do the following:

### Sleep measures

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



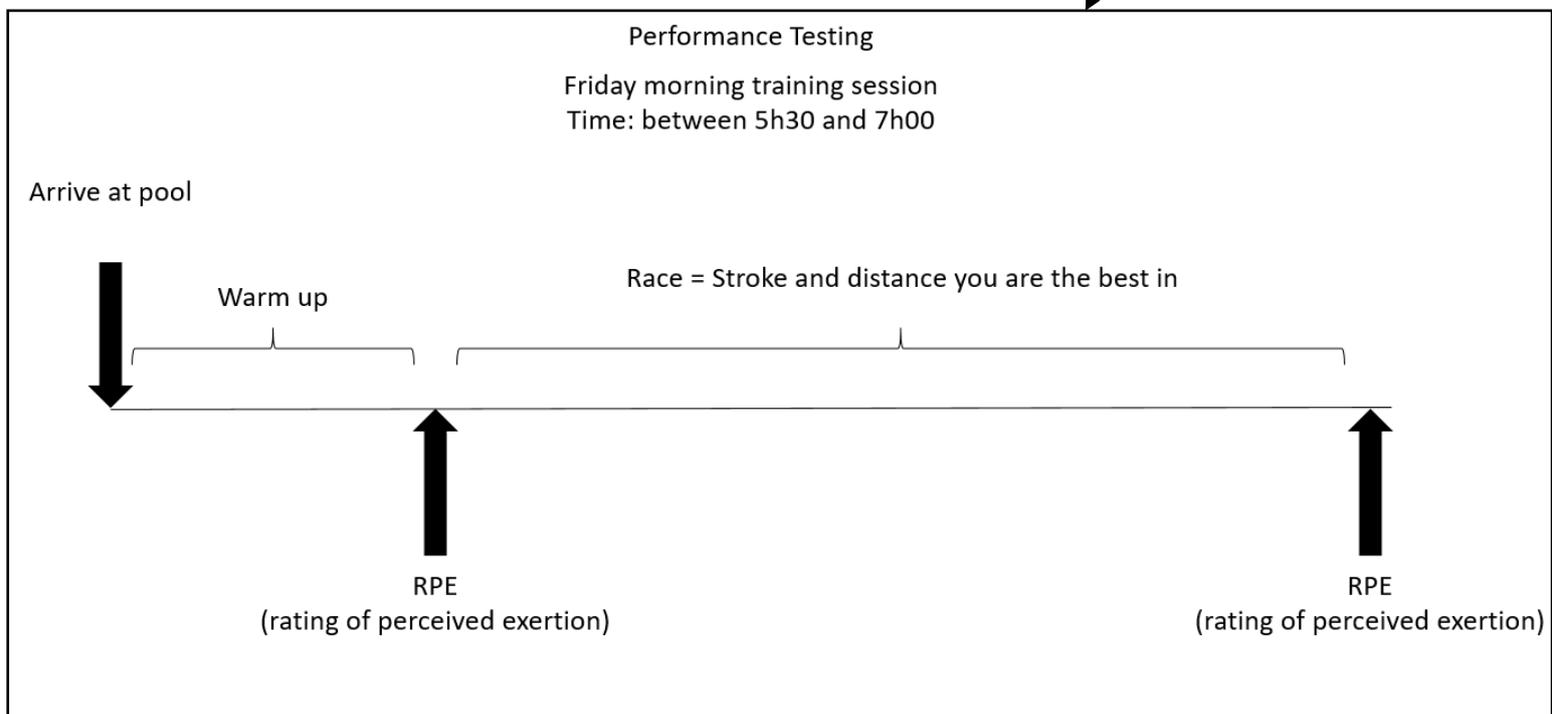
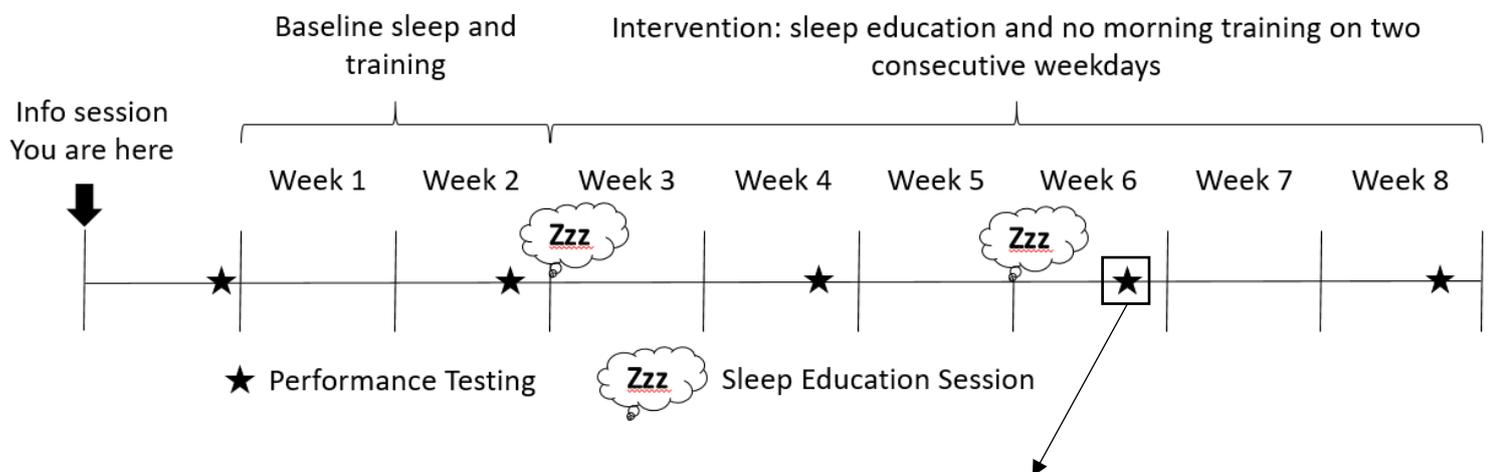
### Intervention

- Your child will need to attend a sleep education session that you as their parents are invited to attend. This session will take place after the two baseline weeks. This will be a 45-minute seminar where you will learn about sleep, why it is important for your child's health and performance, and ways they could improve their sleep (and maybe yours too!).
- You will receive a sleep information booklet that you will be able to keep. It will include the information from the seminar, and additional helpful information.
- Three weeks into the intervention, they will be required to attend a follow up session with the researcher where they will receive individual feedback on their baseline sleep (their personal data will not be shared with the group). This will also be an occasion to let the researcher know how you and your child are finding the intervention.
- From the beginning of the intervention, their weekly training sessions will also be rescheduled. They will not have training on two consecutive weekday mornings for the six

weeks of the intervention. Their training sessions will be moved but their overall training load will not change; only the time at which training takes place will change.

### Performance measures

- They will be required to complete five performance testing sessions.
- Performance testing will take place during the Friday morning training session every two weeks.
- The performance test will include a fixed warm-up (the warm-up their coach would typically take them though before a real race) followed by a simulated race time trial.
- The race will be in the stroke and distance they are most competitive in (their coach will help them decide if they are not sure).
- Their race time will be recorded and their performance will be compared over the weeks they take part in the study. Their ratings of perceived exertion will be taken directly after their warm up and again after their race.



## **Data Management**

- Data will be analysed by researchers from the Sleep/Wake Research Centre.
- None of the data collected will have your child's name attached to it. Instead, it will be labelled with an identification number. Individual data will only be made available to your child (and you if your child is under the age of 16). No one else will have access to their information without their permission. No material that could personally identify them will be used in any reports on the study.
- The findings of the study will be published in peer-reviewed papers and presentations. You will receive a summary of the findings of the study and have access to this via hard copy or on the Sleep/Wake Research Centre website.
- De-identified data may subsequently be used in conjunction with data from other studies to improve our understanding of sleep and circadian processes in young people. Your child (and you if your child is under the age of 16) retains the right to remove their data from subsequent analyses after the study ends.
- All data will be stored in secure facilities at the Sleep/Wake Research Centre, Massey University. The signed consent forms 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 or your child asks us to delete it. If they want us to delete their data, they will need to remember their participant ID number since it will not be labelled with their name.

## **Risks, Inconveniences, and Benefits**

*Risks.* Taking part in physical training always involves the risk of injury. The study has been designed to ensure that your child is not asked to do more or less physical training than they would typically do in a week. Major spikes or dips in training load are typically the most likely times when athletes get injured. Keeping their training load consistent will therefore minimise the risk of them getting injured during the intervention period even though their training times are being altered. Injuries commonly occur when introducing an unfamiliar stressor into training. For this reason, the performance test they will perform is one that they will be accustomed to as an elite swimmer. The training load and performance measures they will encounter during the study are no different to what they would experience in their normal swimming routines.

*Inconveniences.* Wearing the actigraph may be considered an inconvenience. There is a possibility that the actigraph can cause them some discomfort particularly if they do not usually wear a watch when sleeping. If as a result of wearing the actiwatch they experience a skin irritation, please notify the researcher so that corrective measures can be taken. Keeping the sleep diary will take a few minutes each day across the 8-week study. The diary has been kept as concise as possible to minimise its inconvenience to the user. However, the change in their training times may be inconvenient to them or to you. The change in training days may mean you have to adjust your routine for getting them to the pool and to school.

*Benefits.* By participating in this project, they will contribute to an improved understanding of the sleep of junior elite swimmers. You and your child will also have the opportunity to gain insight into the workings of the human body. They will gain a better understanding of their sleep patterns and sleep needs as well as how their body reacts to the amount of sleep they get. Once their participation is complete, they may contact the researchers to receive feedback on their individual data (e.g., to see a chart of their sleep during the entire study). To identify their data, they will need to remember and provide the researchers with their 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 and your child 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 names will not be used in reports (a participant ID number is used instead) unless you give permission to the researcher; 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](mailto:humanethicsoutha@massey.ac.nz)

### **Project Contacts**

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

Travis Steenekamp                      [T.Steenekamp@massey.ac.nz](mailto:T.Steenekamp@massey.ac.nz)                      022 698 9335

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](mailto:T.L.Signal@massey.ac.nz)

Co-supervisor: Dr Jennifer Zaslona                      [J.Zaslona@massey.ac.nz](mailto:J.Zaslona@massey.ac.nz)

Co-supervisor: Professor David Rowlands                      [D.S.Rowlands@massey.ac.nz](mailto:D.S.Rowlands@massey.ac.nz)

Co-supervisor: Professor Philippa Gander                      [P.H.Gander@massey.ac.nz](mailto:P.H.Gander@massey.ac.nz)