**KINS 486**

**Heart Rate Monitoring Assignment**

**Instruction Sheet**

**Purpose:** To familiarize students with the use of their heart rate monitors and their own heart rate responses to exercise.

Please start your assignment early. Part 1 must be completed before Part 2 can be completed.

***Both Part 1 and Part 2 are due on Thursday March 1st*** in class. Make sure your name is on all sheets of paper that you submit. PLEASE WRITE LEGIBLY. If I can’t read it, it is wrong.

**Part 1: Resting HR**

Determine your resting heart rate

Task:

* Wear your heart rate monitor regularly. Record at least 10 resting heart rates.
* From these data determine your resting heart rate. You must show your work and write the method you used to find your resting heart rate. For example, you may choose to take the lowest heart rate you record, or you may choose to take an average of your all of your recorded heart rates or a few of your recorded heart rates (i.e. discard the HRs that are outliers or clearly not resting).
* Resting HR is most commonly taken upon waking but you may find yourself sitting or lying down, very relaxed and may observe a low HR. Watch to see how low you can get your heart rate!

**Part 2: Exercise HR**

Heart rate response to exercise

Task:

* Wear your heart rate monitor during at least 10 exercise sessions. Write down your maximum heart rate achieved, and the average heart rate for the exercise session. You will need to read your HRM instruction manual to find out how your monitor does this.
* Make sure you include a comment about each exercise session such as “felt easy today,” or “felt tired today.”
* On the data collection sheet calculate your 40, 50, 60, 70, 80, and 90% HRR heart rates. Show all of your work.
* For each exercise session you will calculate the percentage of maximal heart rate using your average heart rate and the heart rate reserve method.

**Heart Rate Monitor Basics**

* The chest strap sits just below the nipple line around the torso. For women, the chest strap should fit comfortably *under* a sports bra. The chest strap needs to be against the skin to work.
* The monitoring screen will take 10-20 seconds to determine HR, the receiver needs to collect enough ‘beats” to calculate a per minute rate which is then shown on the screen.
* The chest transmitter of most heart rate monitors has a range of ~ 3 ft. If your receiver (the watch) is within 3-4 feet of someone else who is wearing a heart rate monitor then you will receive some of their signals and your data will be junk.
* HRMs can be glitchy. If you find that the watch is not picking up HR from the chest strap try wetting the chest strap either with water or saliva (saliva is better). The chest strap picks up the electrical signals from the heart, the water/saliva acts as a conductor. Sometimes HRMs will start working/working better or more consistently when you start sweating.
* HRMs can be glitchy. If your receiver is showing a HR that is not possible (too high or too low), for example, you are running and your watch says your heart rate is 56 bpm try backing out of the monitoring screen to the home screen and rentering the monitoring screen. Every HRM I have ever had has done this and this has been the most common fix.

**Part 1**

**Resting HR**

**23 points**

Example data collection:

Date: 1-3-18

Heart Rate: 56 bpm

Comment: Taken when I woke up this morning.

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| --- | --- | --- | --- |
| **1** | Date: 2/7/18  Heart Rate: 67 BPM  Comment: Taken after waking up and moving around | **2** | Date: 2/8/18  Heart Rate: 68 BPM  Comment: Taken after waking up in the morning |
| **3** | Date: 2/14/18  Heart Rate: 71 BPM  Comment: Taken while sitting in Iler waiting for morning lift | **4** | Date: 2/15/18  Heart Rate: 68 BPM  Comment: Taken while waiting to hit in the morning |
| **5** | Date: 2/17/18  Heart Rate: 70 BPM  Comment: Taken during lunch | **6** | Date: 2/18/18  Heart Rate: 68 BPM  Comment: Taken on the bus ride to the game in morning |
| **7** | Date: 2/19/18  Heart Rate: 69 BPM  Comment: Taken while sitting in first class | **8** | Date: 2/20/18  Heart Rate: 62 BPM  Comment: Taken in the morning after waking up |
| **9** | Date: 2/21/18  Heart Rate: 67 BPM  Comment: Taken in morning after waking up | **10** | Date: 2/22/18  Heart Rate: 71 BPM  Comment: Taken in morning after waking up |
| Resting HR = \_\_\_\_\_\_\_ | | How did you determine your resting HR?  Calculated by adding the 10 RHR and dividing by 10 | |

Total = 23 points (2 points per completely filled data collection section [with valid resting data], 2 points for method, 1 point for RHR)

**Part 2**

**Exercise HR**

**59 points**

Examples

HRR Calculation for Training Zone

Example Data:

* RHR = 52 bpm
* Max HR = 220 –age (30 yr) = 190 bpm
* HRR = MHR – RHR = 190 – 52 = 138 bpm
* To calculate 60% HRR
* (0.6 x HRR) + RHR = 60% HRR
* (0.6 x 138) + 52 = 135 bpm (134.8 rounded)

**Round AT THE END of your calculations**

Calculation for determining what %HRR you are at during training

|  |  |
| --- | --- |
| Step 1. Average training HR – RHR  Step 2. What %HRR is this answer? Divide answer by HRR.  Step 3. Multiply by 100 for percentage. | 155 bpm – 52 bpm = 103 bpm  103 bpm / 138 bpm = 0.746  0.746 x 100 = 74.6% of HRR  The subject was exercising at 74.6% of HRR. |

Example training log entry

|  |  |
| --- | --- |
| Date: 4-6-18  Activity: Morning Run –  Time: 1 hour 5 min  Average HR: 155 bpm  Max HR: 172 bpm  Comment: felt really easy today, hilly course but nice weather. | HRR calculation  155 – 52 = 103  103 / 138 = 0.746  0.746 x 100 = 74.6% HRR |

**Part 2**

**Exercise HR**

Data Collection Sheets

Show ALL of your work!

What is your Resting HR? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(1)

What is your Max HR? \_\_\_\_\_\_220-21= 199 BPM\_\_\_\_

(1)

What is your HRR? \_\_\_\_199 - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(1)

Calculate your 40, 50, 60, 70, 80, and 90% HRR heart rates. Show your work. If I can’t read your work, it is incorrect. Please be neat!

40% HRR =

(1)

50% HRR =

(1)

60% HRR =

(1)

70% HRR =

(1)

80% HRR =

(1)

90% HRR =

(1)

Page = 9 points

Training Data

5 points per completed training session. I must be able to read your work to be able to award points!

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| --- | --- | --- |
| **1** | Date: 2/7/18  Activity: Running  Time: 7:15 am  Average HR: 118 BPM  Max HR: 159 BPM  Comment: Coach ran us hard this morning | HRR calculation |

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| **2** | Date: 2/8/18  Activity: Softball practice  Time: 6:30 pm  Average HR: 110 BPM  Max HR: 142 BPM  Comment: Practice was about average today | HRR calculation |

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| **3** | Date: 2/14/18  Activity: Running at beginning of practice  Time: 3:30 pm  Average HR: 100 BPM  Max HR: 152 BPM  Comment: Only ran for a short while but was feeling tired | HRR calculation |

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| --- | --- | --- |
| **4** | Date: 2/15/18  Activity: Hitting for an hour continuously  Time: 8 am  Average HR: 110 BPM  Max HR: 123 BPM  Comment: Hitting was good but a lot of running in between stations | HRR calculation |

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| **5** | Date: 2/17/18  Activity: Jogging workout with team  Time: 9:30 am  Average HR: 95 BPM  Max HR: 149 BPM  Comment: Was really irritated with this workout since we played that day | HRR calculation |

Page = 25 points

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| --- | --- | --- |
| **6** | Date: 2/18/18  Activity: Softball game  Time: 10 am  Average HR: 120 BPM  Max HR: 140 BPM  Comment: Very intense game at first, got on base a lot | HRR calculation |

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| --- | --- | --- |
| **7** | Date: 2/19/18  Activity: Walk  Time: 5 pm  Average HR: 110 BPM  Max HR: 122 BPM  Comment: Easy walk but kept goofing off so would sprint then walk | HRR calculation |

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| --- | --- | --- |
| **8** | Date: 2/20/18  Activity: Practice  Time: 3 pm  Average HR: 120 BPM  Max HR: 148 BPM  Comment: Ran hard laps during practice, was not feeling well | HRR calculation |

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| --- | --- | --- |
| **9** | Date: 2/21/18  Activity: Practice  Time: 4 pm  Average HR: 120 BPM  Max HR: 141 BPM  Comment: Practice was not hard, I have no clue why my HR was so high | HRR calculation |

|  |  |  |
| --- | --- | --- |
| **10** | Date: 2/22/18  Activity: Hitting individual  Time: 8:30 am  Average HR: 115 BPM  Max HR: 132 BPM  Comment: Stressed about interview directly after hitting | HRR calculation |

Page = 25 points