

# **Glenbrook South High School**

## **POLAR Heart Rate Monitor Program**

### **Overview:**

Heart rate monitors help all students reach their optimal personal fitness levels, while engaging in physical education classes. It shows our students the effect exercise has on their body in real-time and helps every student have an individualized workout routine that is appropriate for the level of activity. Heart rate monitors ensure that every student is exercising at the correct intensity and they have the ability to self assess their individual goals based on personal results.

### **Benefits of Heart Rate Monitors:**

- A better understanding of the effects of exercise on the brain and body (SPARK Research)
- Accurate, real-time feedback for students self-assessment
- Personalized teaching and exercises based on fitness level
- Objective grading based on individual effort
- Increased motivation

### **Why does my son/daughter need to use Polar HR monitors?**

ISBE Standards and Goals for Physical Education:

**STATE GOAL 20:** Achieve and maintain a health-enhancing level of physical fitness based upon continual self-assessment.

Why This Goal Is Important:

Regular physical activity is necessary to sustain physical fitness and health. Students need to apply training principles—frequency, intensity, time, and type (FITT)—to achieve their personal fitness goals. Fitness expectations need to be established on an individual basis; realistic goals need to be based on the health-related and skill-related components of fitness, including endurance, strength, flexibility, cardiorespiratory fitness, body composition, balance, agility, spatial awareness, power, reaction time, coordination and speed. By learning and applying these concepts, students can develop lifelong understanding and good habits for overall health and fitness.

## Frequently Asked Questions:

### **How do you determine how hard my son/daughter should be working?**

There are two universal themes that we teach our students in PE about proper levels of intensity in a workout. First, is an appropriate target heart rate. Your target heart rate isn't one rate but a range of rates (beats per minute, or bpm), expressed as percentages of your maximum heart rate, that are safe for you to reach during exercise. For most healthy people, the American Heart Association recommends an exercise target heart rate ranging from 50% to 80% of your maximum heart rate, which is normally calculated as the number 220 minus your age. So for our classes we begin with the formula 220 minus your age to equal maximum exercise heart rate. We then calculate our workouts based on what we want to accomplish. Target zones are based on a child or adolescent max heart rate of roughly 200 bpm +/- 7 bpm (we have chosen 195). Zones for physical education can be used based on the length of activity time, and the goal of the day. If students are restricted by a short class period, more intense exercise is needed to increase their performance capacity.

### **TRAINING ZONES**

**Healthy Heart Zone** (Warm up) --- 50 - 60% of maximum heart rate: The easiest zone and probably the best zone for people just starting a fitness program. It can also be used as a warm-up for more serious walkers. This zone has been shown to help decrease body fat, blood pressure and cholesterol. It also decreases the risk of degenerative diseases and has a low risk of injury. In general you would increase the time of exercise with the lower intensity.

**Fitness Zone** (Fat Burning) --- 60 - 70% of maximum heart rate: This zone provides the same benefits as the healthy heart zone, but is more intense and burns more total calories. In general you would increase the time of exercise with the lower intensity and this is difficult to do within a 30 minute fitness session.

**Aerobic Zone** (Endurance Training) --- 70 - 80% of maximum heart rate: The aerobic zone will improve your cardiovascular and respiratory system AND increase the size and strength of your heart. This is the preferred zone if you are training to increase your fitness levels. More calories are burned. Due to the time constraints we are in within a PE class this is the most prevalent zone in our training regimen.

**Anaerobic Zone** (Performance Training) --- 80 - 90% of maximum heart rate: Benefits of this zone include an improved fitness performance (the highest amount of oxygen one can consume during exercise) and thus an improved cardiorespiratory system, and a higher lactate tolerance ability which means your endurance will improve and you'll be able to fight fatigue better.

**Red Line** (Maximum Effort) --- 90 - 100% of maximum heart rate: Although this zone burns the highest number of calories, it is very intense. Most people can only stay in this zone for short periods.

## **Principle of FITT**

Think of The FITT principle as a set of rules that must be adhered to in order to benefit from any form of fitness training program. These rules relate to the Frequency, Intensity, Type and Time (FITT) of exercise. These four principles of fitness training are applicable to individual exercising at moderate training levels and may be used to establish guidelines for both cardiorespiratory and resistance training. With any of the target zones above, the principle of FITT may change the levels of intensity, time and type in regards to the desired zone.

## **Is HRM grading fair to students that have lower fitness levels?**

This is contrary to the very purpose of heart rate monitors and the basics of calculating a target heart rate. Our hrm's are set at a level that is consistent with the recommendations of the American Heart Association, which for most students, means aerobic workouts will be 140-160 beats per minute. This is equivalent to 70% to 80% of the maximum heart rate. A student that may be more sedentary cardiovascularly will actually enter the zone at a faster rate than a student that is more active. Polar heart rate monitors show your student the effect of any exercise on their body. This means you can objectively assess students of all abilities while safely motivating them with instant feedback on their activity.

## **Is HRM grading fair to students that have higher fitness levels?**

As a department, we acknowledge that each student may have to work differently to get into their zone than other students. We feel that over the course of the year, students will learn to adapt to different intensities in order to meet the appropriate heart rate requirements. The American Heart association does not differentiate between body types in determining exercise levels.

When students walk into a physical education teaching station they will be met with individualized physical programming and information to enhance knowledge of their own wellness. If they are pushed beyond their limits to "make a grade" or not challenged enough because they are already "fit" - they lose. With heart rate monitors, students are motivated, accountable and safe during their classes. The heart rate monitors provide a goal for students to reach. This goal will ensure they are benefiting from class. Just as the students are held accountable, so are the teachers. Teachers will provide modifications for all activities to ensure the kids have an environment where it is possible to reach their goals. The student's heart rate will act as a tachometer giving consistent feedback on how challenging a particular lesson is to their body.

Students participating in exercise sessions with heart rate monitors may notice very quickly that not every student is asked to do the same workload. The goal is to avoid over and under training of each individual. The teacher will educate the students on individual differences, as well as workload vs. working within an individual's capacity. Students may accomplish varying workloads, (intensity, pace, rest between intervals) but we will keep the body's effort consistent. Student growth is the goal, and monitoring heart rate gives an objective measure of that growth.

## **How do heart rate monitors help students know they are exercising in the right heart rate zone?**

The Polar Heart Rate Monitor:

- Helps teachers educate the students to exercise in each of the different heart rate zones each which give different benefits
- Gives students accurate and real-time feedback on their exercise intensity
- Allows students to monitor and follow their fitness improvement

While heart rate monitors will help your student find their personal exercise intensity, they also tell them what zone they should be exercising in for optimum results. Target heart rates and heart rate zones are calculated as percentages of the maximum heart rate (HRmax) and are displayed on screen to keep your students on the right track. Polar heart rate monitors show your student the effect of any exercise on their body. This means we can objectively assess students of all abilities while safely motivating them with instant feedback on their activity.

## **Why do I have to buy a strap?**

There are several reasons why students should use their own heart rate strap:

**Hygiene** - For sanitary reasons each student should wear and clean their own strap.

**Efficiency** - We want to use every minute of class that we can. Having the strap and transmitter on before students get to class saves 2-3 minutes at the beginning and end of each class letting us get to work immediately. Calculating 2 minutes per class adds up to 10 minutes per week, 1 hour per month, and nearly 9 hours per year of more time on task. This adds up to real class time we have saved and used over the course of a year.

**Lifelong Fitness** - District 225 has asked the PE department to become more relevant and rigorous to students. In short, we do not want to be just about recreational and sport activities but about lifelong fitness. Although using sports and activities for fitness is definitely part of the equation, understanding the world of personal fitness is the cornerstone of our new PE philosophy. Using a heart rate monitor in class, and then using it outside class, is a skill that can be used for personal fitness even after graduation. All health clubs have machines that are compatible with POLAR.

**Safety** - District 225 Physical Education asks our students to perform at a high level of effort in regards to cardiovascular and strength training exercises. It would not be safe for our students to work at this level without a teacher monitoring their heart rate. Remember, our goal is not to be in the high intensity range everyday for every workout. When a student is exercising too high for the work they are putting in, a teacher is aware that the effort needs to be reduced.

**Can I buy my own strap or transmitter?**

For consistency, we require that you purchase the school issued equipment. The product we have chosen has been created to fit our multi strap and product use. After researching many different products and completing a competitive bid process, we decided on POLAR.

**What happens if the technology is temperamental and is constantly experiencing technical difficulties?**

We have not experienced inaccuracies in using POLAR technology with our students. We feel the sensors accurately display a snapshot of a student's effort in class. In the past our students were graded solely on effort as viewed by the teacher. Although our teachers input is still very important, the data received from the heart rate monitors is extremely valuable. We have spent the last year working with POLAR to become proficient at using their technology. Our heart rate monitors are set at a level that is consistent with the recommendations of the American Heart Association. We believe the system that we use is fair and accurately measures a student's output during class.

## Target Heart Rate Zones (195 Max HR)

	Heart Rate Zone	Training Benefits
<p><b>VERY LIGHT</b></p> 	<p><b>GREY ZONE</b> (50-60% of MHR) <b>97-117 bpm</b></p> <p><b>Recommended for:</b> Basic training for beginners, non active people, weight management.</p> <p><b>Duration:</b> 20-40 min</p>	<ul style="list-style-type: none"> <li>• Helps with recovery</li> <li>• Improves overall health and metabolism</li> </ul> <p><b>Feels Like:</b> You will be able to carry on a full conversation in this zone, although your breathing will increase more than usual. Easy muscle works.</p>
<p><b>LIGHT</b></p> 	<p><b>LIGHT BLUE ZONE</b> (60-70% of MHR) <b>117-136 bpm</b></p> <p><b>Recommended for:</b> Everybody for longer and frequently repeated exercise. Improve health benefits</p> <p><b>Duration:</b> 40-80 min</p>	<ul style="list-style-type: none"> <li>• Improves basic endurance</li> <li>• Increase muscular fitness and capillary density</li> <li>• Maximum fat burn over time</li> </ul> <p><b>Feels Like:</b> You will be breathing a little heavier but will still be able to speak in short sentences. Low muscle load, light sweating.</p>
<p><b>MODERATE</b></p> 	<p><b>GREEN ZONE</b> (70-80% of MHR) <b>136-156 bpm</b></p> <p><b>Recommended for:</b> Everybody for typical, moderately long exercise. To improve cardiovascular endurance.</p> <p><b>Duration:</b> 10-40 min</p>	<ul style="list-style-type: none"> <li>• Improves aerobic fitness and health</li> <li>• Improves circulation in heart and skeletal muscles</li> <li>• Lactic acid begins to build in bloodstream</li> </ul> <p><b>Feels Like:</b> You will be breathing harder and able to only speak in short sentences. Light muscular fatigue, moderate sweating.</p>
<p><b>HARD</b></p> 	<p><b>ORANGE ZONE</b> (80%-90% of MHR) <b>156-175 bpm</b></p> <p><b>Recommended for:</b> People training to increase fitness performance for short periods of time.</p> <p><b>Duration:</b> 10-20 min</p>	<ul style="list-style-type: none"> <li>• High caloric burn.</li> <li>• Increases VO2 Max</li> <li>• Body becomes better at using carbohydrates for energy, able to withstand lactic acid longer</li> </ul> <p><b>Feels Like:</b> Heavier breathing. Becomes more difficult to speak in sentences. Muscular fatigue.</p>
<p><b>MAXIMUM</b></p> 	<p><b>RED ZONE</b> (90-100% of MHR) <b>175-195 bpm</b></p> <p><b>Recommended for:</b> Fit people with athletic training backgrounds.</p> <p><b>Duration:</b> Less than 5 min</p>	<ul style="list-style-type: none"> <li>• Helps fit athletes develop and increase speed</li> <li>• Reach lactic acid threshold</li> </ul> <p><b>Feels Like:</b> It will be difficult to speak except for single words. Muscle fatigue will exist.</p>