

Recommendations

- ▶ Moderate intensity: At least 30 minutes/day 5 days a week (150 minutes/week)

or

Vigorous intensity: At least 20 minutes/day 3 days a week (75 minutes/week)

or

A combination of the two

- ▶ Best results: ≥ 300 minutes/week (60 minutes/day 5 times a week)
- ▶ Accumulate time in at least 10 minute bouts throughout the day
- ▶ Increase no more than 10% per week to prevent overtraining

Types of Cardio

- ▶ Weight bearing
 - ▶ Activities that require high force and generate impact increase bone strength and density
 - ▶ Low impact examples ellipticals, brisk walking, dancing
 - ▶ High impact examples running, kickboxing, jumping rope
- ▶ Non-weight bearing
 - ▶ Keeps you off your feet
 - ▶ Examples ellipticals, biking, swimming, skiing
- ▶ Engaging in different types of cardio prevents boredom and over training and aids in recovery
- ▶ Health conditions may limit what you do
- ▶ The best cardio is the cardio that you like to do/have access to

Benefits of Cardio

- ▶ Reduces risk for CVD and premature mortality
- ▶ Improves high blood pressure, glucose intolerance, insulin resistance, high cholesterol
- ▶ Maintains or reduces weight
- ▶ Regular cardiovascular exercise has lasting calorie burning benefits
- ▶ Strengths your heart
- ▶ Activities of daily living are easier

Measuring Intensity

- ▶ Talk test*
 - ▶ Moderate intensity = Can talk comfortably
 - ▶ Intermediate intensity = Not sure if talking is comfortable
 - ▶ Vigorous intensity = Definitely cannot talk comfortably
- ▶ Rate of perceived exertion (RPE)*
 - ▶ Rate how you feel based on a scale from 0 (at rest) to 10 (maximal effort)
 - ▶ See handout
- ▶ Heart rate
 - ▶ Requires that you wear a monitoring device, take it manually, or use machines with heart rate measuring devices
 - ▶ Calculate your target heart rate range (formula on next slide)
- ▶ *Recommended for those with high blood pressure

Progression: Phase 1 - Base Training

- ▶ For those who are sedentary or have little cardiorespiratory fitness
- ▶ Goal 1: Establish regular exercise pattern
 - ▶ Start with low to moderate intensity training (phase 1 intensities)
 - ▶ Can talk comfortably
 - ▶ RPE of 3-4 (“moderate” to “somewhat hard”)
 - ▶ 64% to 76% MHR
 - ▶ 40% to 59% HRR
- ▶ Then extend duration of exercise (no more than 10% each week)
 - ▶ Goal 2: Sustain a total of 30 minutes comfortably then move to phase 2

Progression: Phase 2 – Efficiency Training

- ▶ For regular exercisers wanting to improve or maintain fitness and/or weight loss; and those training for a single event
- ▶ Goal 3: Increase duration and alternate short bouts of low intensity intervals to improve aerobic efficiency, fitness, and health with recovery periods
- ▶ Many individuals are content in staying in this phase even if pursuing recreational competitive goals
- ▶ Perform warm-up, recovery bouts, and cool down using phase 1 intensity guidelines
- ▶ Introduce lower intensity intervals then gradually increase intensity
 - ▶ Training ratios (work to recovery [phase 1 intensities]): start with 1:3; then 1:2; and finally 1:1
 - ▶ Phase 2 (work) intensities
 - ▶ Not sure if talking is comfortable
 - ▶ RPE of 5 to 6 (“hard”)
 - ▶ 77% to 93% MHR
 - ▶ 60% to 84% HRR

Progression: Phase 3 – Endurance Training

- ▶ For those who have multiple endurance goals, want to improve competitive speed, train 7+ hours/week, or want to train like an athlete
- ▶ Do not need to be competitive, just motivated
- ▶ Goal 4: Enhance aerobic efficiency and improve speed, endurance, and/or power
- ▶ Prevent overtraining and burnout
 - ▶ Recovery days are essential to success
 - ▶ Vary one at a time: frequency, intensity, or time
 - ▶ More effective to alternate “hard” and “easy” days than “more” or “less” of the same every day

Progression: Phase 3 Continued

- ▶ Incorporating phase 2 and 3 intensities
 - ▶ Recreational competitors – 0 to 1 day/week using phase 3 intensity
 - ▶ Intermediate competitors – 1 to 2 days/week using phase 2 and 3 intensities
 - ▶ Advanced competitors – 3 to 4 days/week using phase 2 and 3 intensities
- ▶ Vary training intensities
 - ▶ 70 to 80% of time in phase 1 intensities
 - ▶ Less than 10% of time in phase 2 intensities
 - ▶ 10 to 20% of time in phase 3 intensities
- ▶ Phase 3 intensities
 - ▶ Definitely cannot talk comfortably
 - ▶ RPE of 7 to 10 (“very hard” to maximal effort)
 - ▶ $\geq 94\%$ MHR
 - ▶ $\geq 85\%$ HRR

Calculating Max Heart Rate (MHR)

- ▶ = $(220 - \text{age}) * \text{training percentages (training \%)}$
- ▶ = $220 - 50$
- ▶ = $170 \text{ beats per minute (bpm)} * 0.64$
- ▶ = 109 bpm

- ▶ training %
 - ▶ Moderate: 64% to 76%
 - ▶ Intermediate: 77% to 93%
 - ▶ Vigorous: $\geq 94\%$

Heart Rate Chart

Age	Maximum HR	50 percent	75 percent	85 percent
20	200	100	150	170
25	195	98	146	166
30	190	95	142	161
35	185	93	138	157
40	180	90	135	153
45	175	88	131	149
50	170	85	127	144
55	165	83	123	140
60	160	80	120	136
65	155	78	116	132
70	150	75	113	127
75	145	72	108	123
80	140	70	104	119
85	135	68	101	115

Calculating Heart Rate Reserve (HRR)

- ▶ More accurate than previous slide
- ▶ Calculate **maximum heart rate**
 - ▶ = $220 - \text{age}$
 - ▶ = $220 - 50$
 - ▶ **170 beats per minute (bpm)**
- ▶ Calculate **heart rate reserve**
 - ▶ = $170 \text{ bpm} - \text{resting heart rate (RHR)}$
 - ▶ = $170 \text{ bpm} - 70 \text{ bpm}$
 - ▶ = **100 bpm**
- ▶ Calculate **training percentages (training %)**
 - ▶ $(100 \text{ bpm} * \text{training \%}) + \text{RHR}$
 - ▶ $(100 \text{ bpm} * 0.64) + 70 \text{ bpm}$
 - ▶ **64 bpm + 70 bpm**
 - ▶ **134 bpm**

▶ As fitness level improves, recalculate resting heart rate

▶ Measure RHR at your radial pulse on your wrist.

- ▶ **training %**
 - ▶ Moderate: 40% to 59%
 - ▶ Intermediate: 60% to 84%
 - ▶ Vigorous: $\geq 85\%$

Exercise Everywhere

- ▶ Recommendation to reduce sedentary behavior
 - ▶ For every 1 hour of sitting engage in 5 minutes of physical activity
- ▶ Examples
 - ▶ Park further away
 - ▶ Take the stairs
 - ▶ Take a walk break
 - ▶ Chat in person
 - ▶ Walk and talk meetings
 - ▶ Walk your dog
 - ▶ Walk/exercise with your kids