

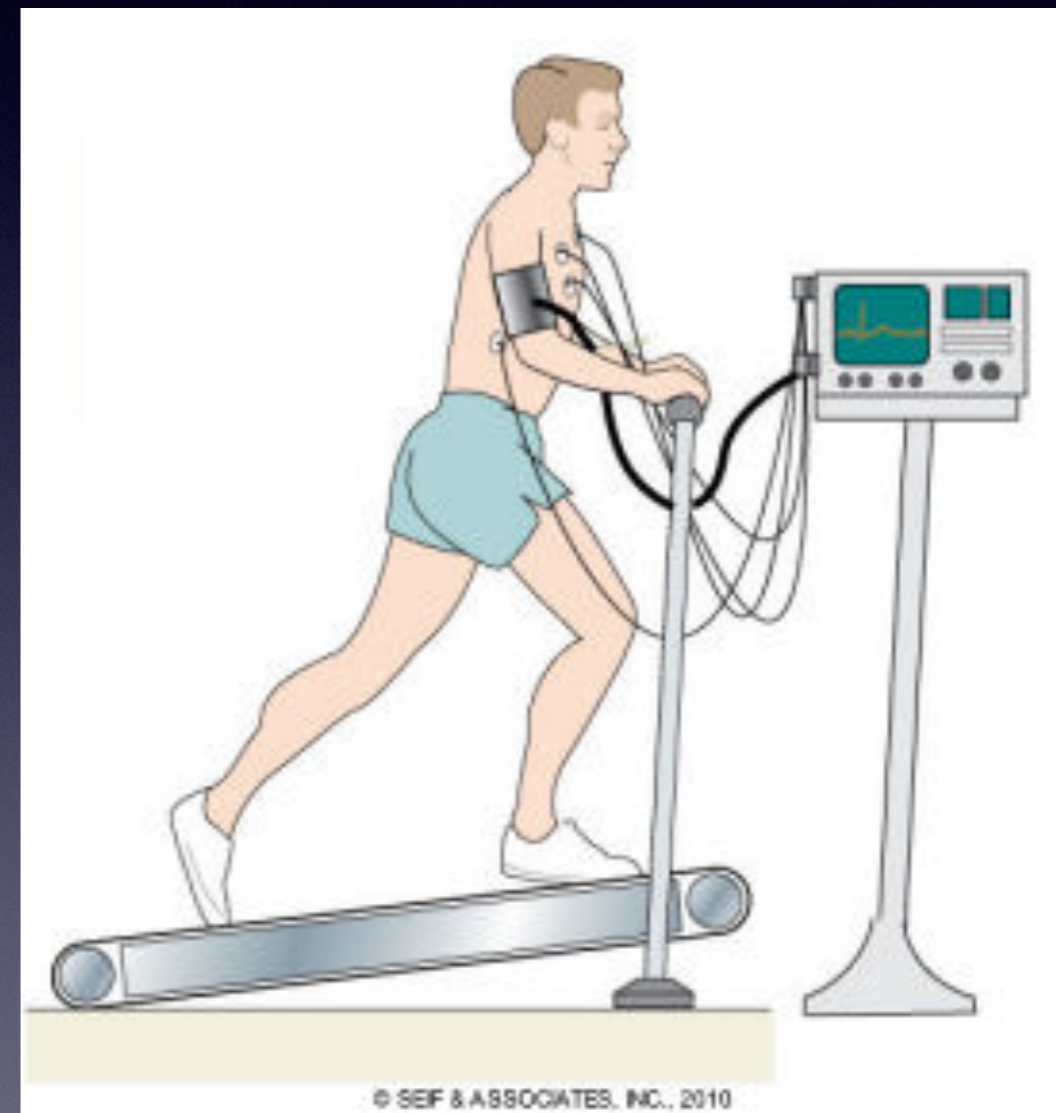
Exercise Prescription

Exercise Prescription

- Stress Testing
- Metabolic Equivalents (METs)
- FITT Principle

Stress Testing

- Bruce Protocol
- Results



Bruce Protocol

Bruce Protocol for Treadmill Testing

STAGE	TIME	SPEED (mph)	GRADE (%)	METS
REST	00.00	0.0	0.0	1.0
1	03.00	1.7	10.0	4.6
2	03.00	2.5	12.0	7.0
3	03.00	3.4	14.0	10.1
4	03.00	4.2	16.0	12.9
5	03.00	5.0	18.0	15.1
6	03.00	5.5	20.0	16.9
7	03.00	6.8	22.0	19.2

Stress Testing Results

- Heart Rate Response
- Irregular Heart Rhythms
- Blood Pressure Response
- Symptoms (chest discomfort, lightheaded, SOB)
- ECG analysis (ST depression)
- Peak MET Level

METs

- Metabolic Equivalents (METs) - a physiological measure used to indicate the amount of oxygen or energy the body uses during physical activity
- 1 MET is equal to the energy cost of sitting quietly
- 1 MET = 3.5 ml O₂ / kg / min, or
- 1 MET = 1 kcal / kg / hour

METs

- When we move / exercise, MET level increases
- 1.1 - 2.9 METs = Light Activity
- 3.0 - 5.9 METs = Moderate Activity
- ≥ 6.0 METs = Vigorous Activity

METs

Physical activity	MET
Light intensity activities	
sleeping	0.9
watching television	1.0
writing, desk work, typing	1.8
walking, 1.7 mph (2.7 km/h), level ground, strolling, very slow	2.3
walking, 2.5 mph (4 km/h)	2.9
Moderate intensity activities	
bicycling, stationary, 50 watts, very light effort	3.0
walking 3.0 mph (4.8 km/h)	3.3
calisthenics, home exercise, light or moderate effort, general	3.5
walking 3.4 mph (5.5 km/h)	3.6
bicycling, <10 mph (16 km/h), leisure, to work or for pleasure	4.0
bicycling, stationary, 100 watts, light effort	5.5
Vigorous intensity activities	
jogging, general	7.0
calisthenics (e.g. pushups, situps, pullups, jumping jacks), heavy, vigorous effort	8.0
running jogging, in place	8.0
rope jumping	10.0

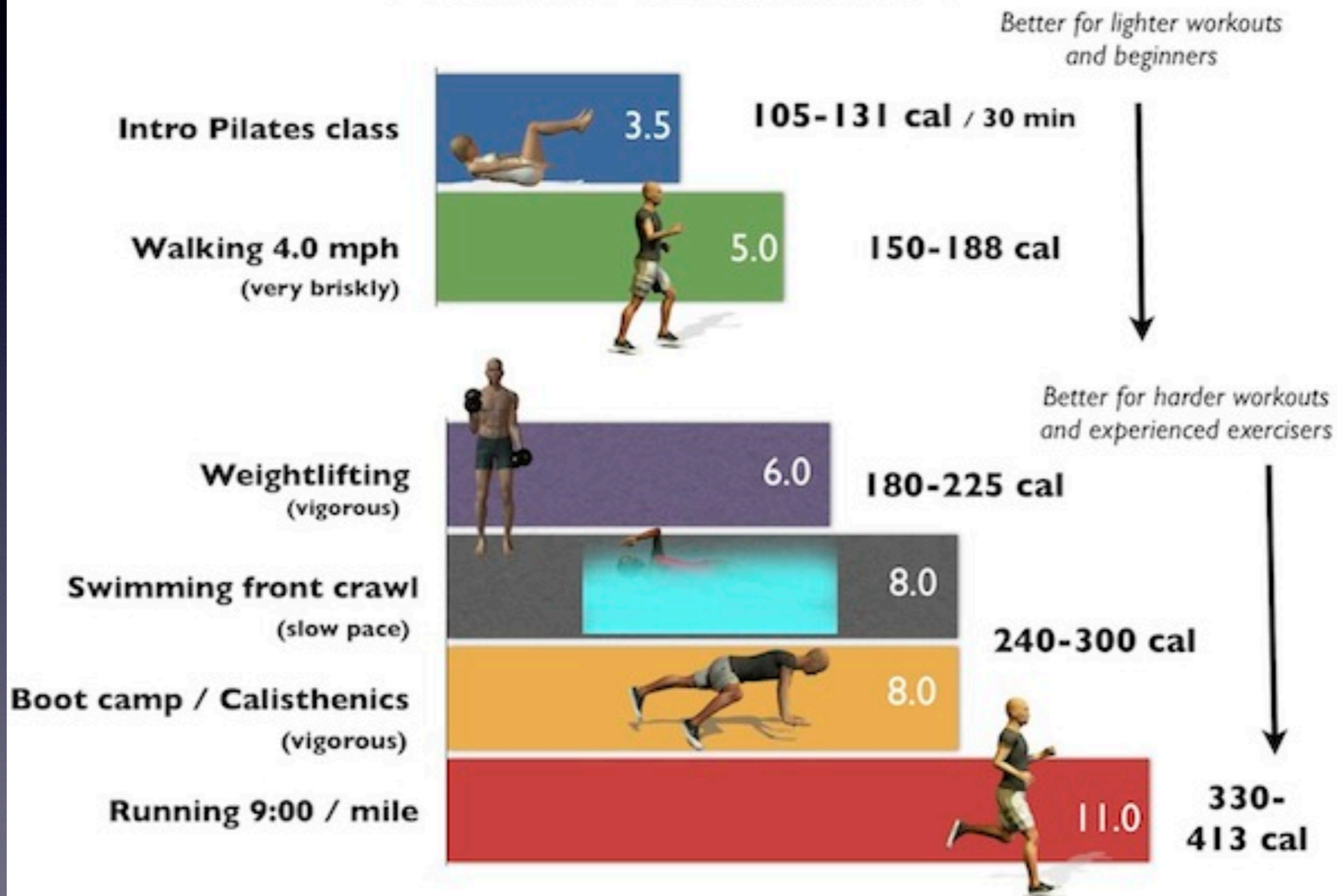
METs

AT HOME ACTIVITIES



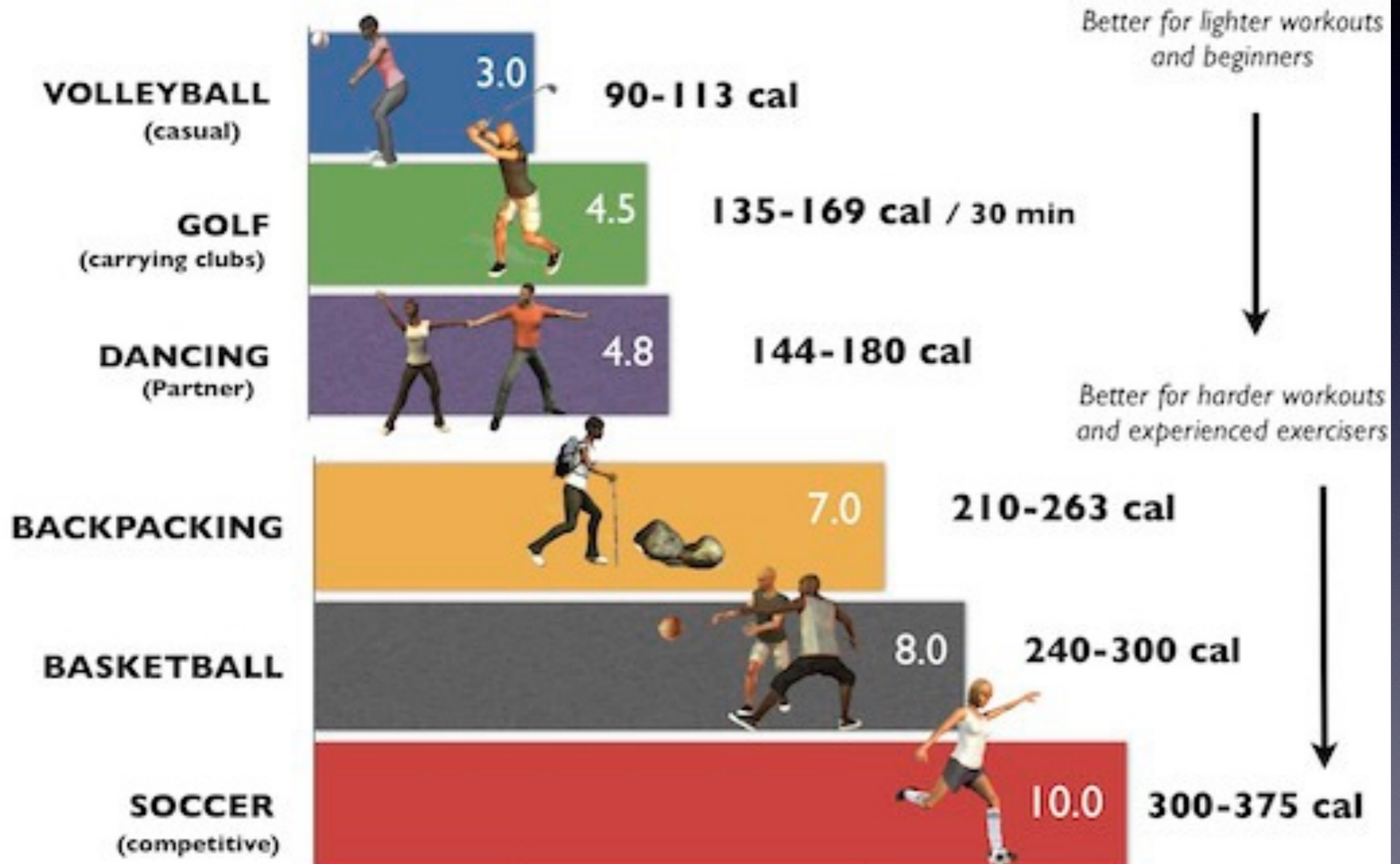
METs

FORMAL EXERCISE



METs

SPORTS and LEISURE



FITT Principle

- FITT stands for the Frequency, Intensity, Time, and Type of Activity
- FITT can be applied to cardiovascular, strength training, and flexibility exercises

FITT for Cardio

- Frequency: The ACSM recommends at least 3-5 days per week, depending on individual goals and intensity of the exercise
- 3 days per week for vigorous activity, 5 or more days per week for moderate activity
- While you can begin to see health benefits with as little as 2 days per week, the more you exercise the greater the benefits

FITT for Cardio

- Intensity: 50 - 80% peak MET level (measured during stress testing)
- When beginning an exercise program start low and increase intensity as you build endurance
- Example: Peak MET level on stress test = 6 METS. Start with activities around 3 METs (walking 2.5 - 3.0 mph, bicycling at 50 watts)
- Intensity can also be gauged by using the Borg RPE scale

FITT for Cardio

Borg Scale

RPE Method

0	No exertion at all
0.5	Very, very weak
1	Very weak
2	Weak
3	Moderate
4	Somewhat strong
5	Strong
6	
7	Very Strong
8	
9	
10	Extremely strong

FITT for Cardio

- Time: at least 30 minutes per day, preferably 60 minutes per day (weight loss)
- Try to be active for at least 10 minute periods
- Add your exercise throughout the day
- Example: 15 minute walk after breakfast, 15 minute walk at lunchtime, 30 minute bike ride after dinner = 60 minutes

FITT for Cardio

- Type of activity: walking, running, bicycling, swimming, rowing, dancing (any repetitive activity that increases heart rate and breathing)
- Try different activities for variety
- If you find an activity that you enjoy, you are likely to do it more frequently

FITT for Strength Training

- Frequency: 2 - 3 days per week
- You can improve muscular strength by training 1 day per week, but 2 - 3 days will enhance gains
- Intensity: in order to increase strength, you need to fatigue the muscle with 1 set of 8 - 10 repetitions. 2 - 3 sets of 8 - 10 reps will enhance strength gains
- Type: free weights, resistance bands, weight machines, body weight training (push ups, core exercises)
- Choose 1 or more exercises for each muscle group

FITT for Flexibility

- Frequency: daily, after your cardio or strength training session
- Intensity: stretching should not be painful. Some discomfort or slight pulling in muscles is normal
- Time: hold each static stretch for at least 15 - 30 seconds
- Type: static stretching, seated / chair stretching, yoga / chair yoga, Pilates