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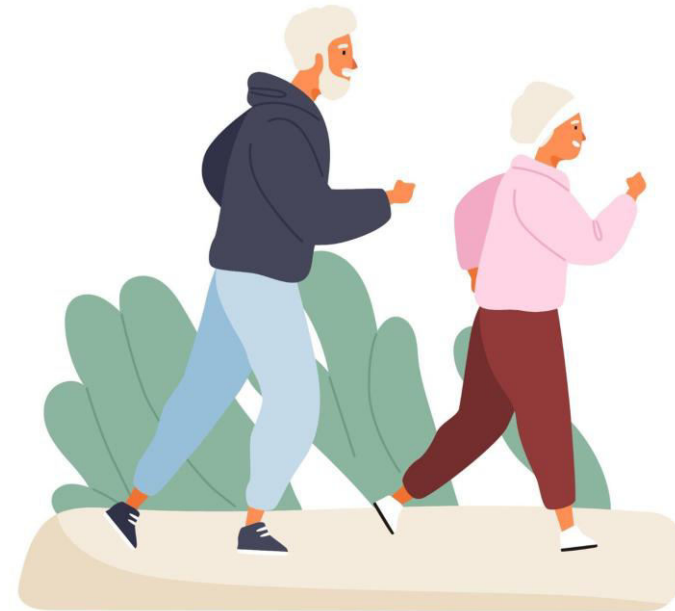
Physical Activity

Any bodily movement produced by skeletal muscles that require energy expenditure.

Doing physical activity at a moderate and regular pace for a certain period of time every day and for five days a week to maintain and improve health.

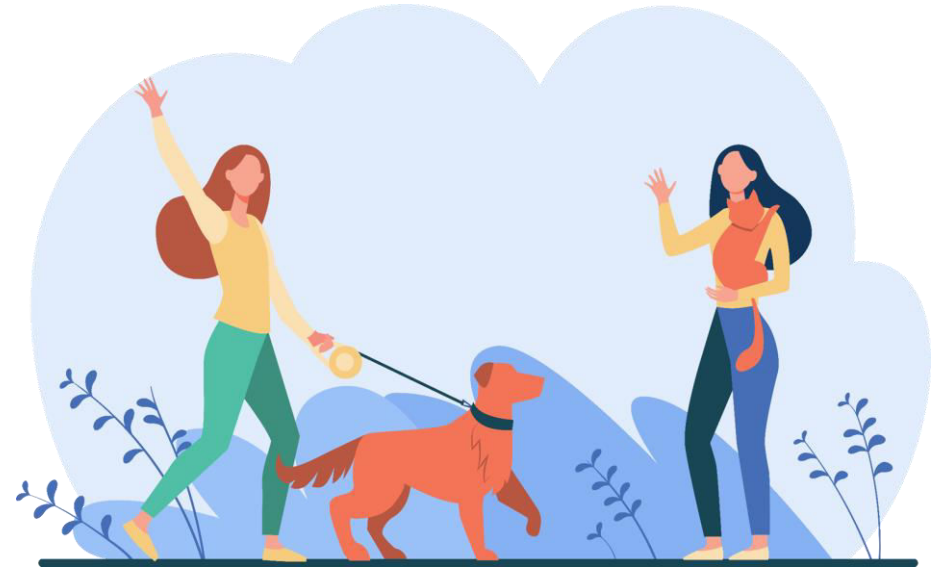
Walking, cycling, swimming or playing sports has significant benefits for health.

It can decrease the risk of a hip fracture and help control weight.



Benefits of Physical Activity

- Reduces the risk of high blood pressure, diabetes and depression
- Improves bone health
- Contributes beneficially to energy expenditure and thus enables energy balance and weight control to be achieved
- Can be practiced in almost all places and does not require specific equipment
- Carrying household items or books, climbing stairs, or washing the car are good activities



Physical Fitness



The state or condition of being fit.

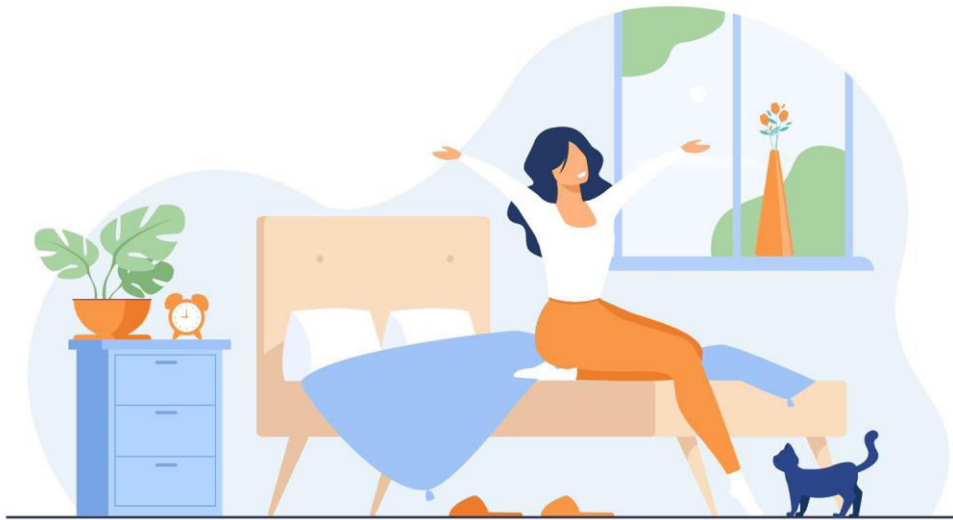
The basic elements of physical fitness are speed, strength, agility, endurance and balance.

Good health as the result of exercise and proper nutrition.

You are able to perform physical activity.

You have the energy and strength to feel as good as possible.

Benefits of Physical Fitness



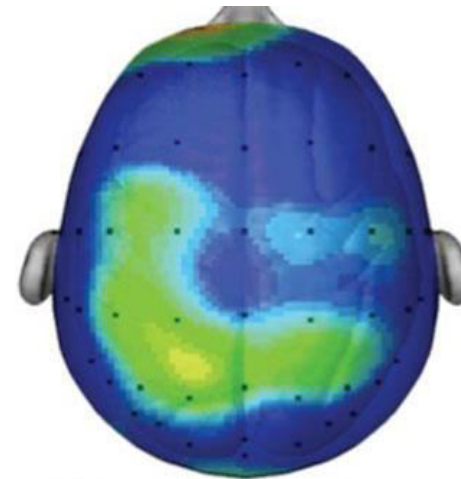
- Improved sleep
- Improved digestion
- Optimal body composition (less fat)
- Healthier bones and higher bone density
- Increased immunity and resistance to colds and other infectious diseases
- Lower risk of some types of cancers
- Strong circulation and lung function
- Lower risk of cardiovascular disease
- Lower risk of diabetes
- Lower risk of gallbladder disease in women
- Lower incidence and severity of anxiety and depression
- Higher self-confidence
- Long and healthy life ahead

Exercise and Your Brain

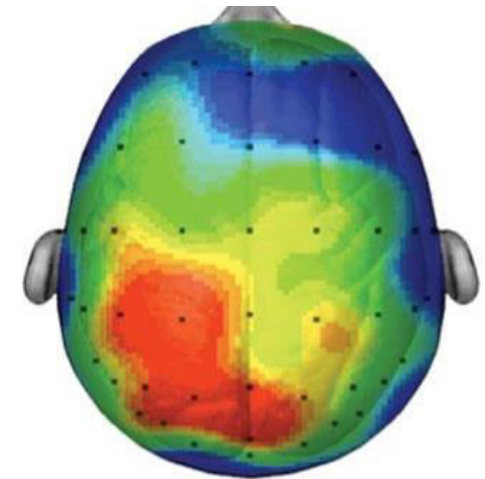
When you exercise, your heart rate increases and your body pumps more oxygen to your brain. A well-oxygenated brain **helps manage anxiety and depression.**

After 20 or 30 minutes of aerobic exercise your body releases chemicals called **endorphins** that interact with receptors in your brain and reduce your perception of pain—meaning **you're more likely to feel positive and upbeat during a tough workout.**

It also releases other mood-enhancing chemicals like **serotonin** and **dopamine** that can stick around in your brain for a couple of hours after you exercise.



**After 20 minutes of
sitting quietly**



**After 20 minutes of
walking**

Physical Activity Pyramid

EVERY DAY–

Be as active as possible.

Use the stairs
Walk or bike to class, work, or shops
Scrub floors, wash windows
Walk your dog
Mow grass, rake leaves, turn compost, shovel snow, tend garden
Wash and wax your car
Play with children

2-3 DAYS/WEEK–

Engage in strength and flexibility activities and enjoy leisure activities often.

Sit-ups, push-ups
Strength training such as weight lifting
Stretching exercises such as yoga
Leisure activities such as canoeing
dancing, golfing, horseback riding



DO SPARINGLY–

Limit sedentary activities.

Watching TV, videos or movies
Playing computer games

3-5 DAYS/WEEK–

Engage in vigorous activities regularly.

Aerobic activities such as running, biking, swimming, roller-blading, rowing, cross-country skiing, kickboxing, power walking, dancing, jumping rope
Sports activities such as basketball, soccer, volleyball, tennis, football, racquetball, softball

Developing Fitness

Guidelines for physical fitness:

Type of activity

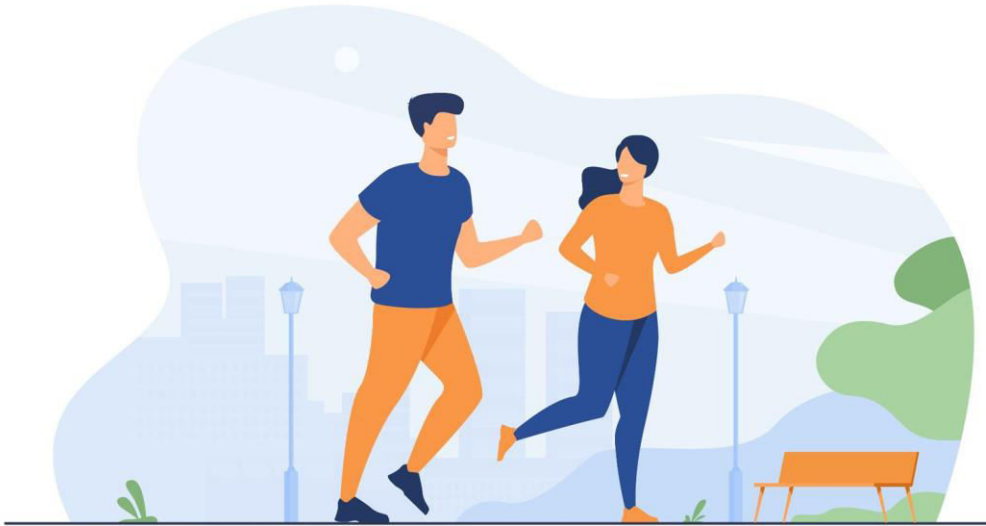
Frequency

Duration

Intensity



Guidelines for Physical Fitness



Type of activity:

Cardio-respiratory (Aerobics) – Utilizes large muscles and can be maintained regularly such as walking, swimming, skiing, or running.

- **Frequency:** 3-5 days/week
- **Duration:** 20-60 minutes
- **Intensity:** 55-90% of maximum heart rate

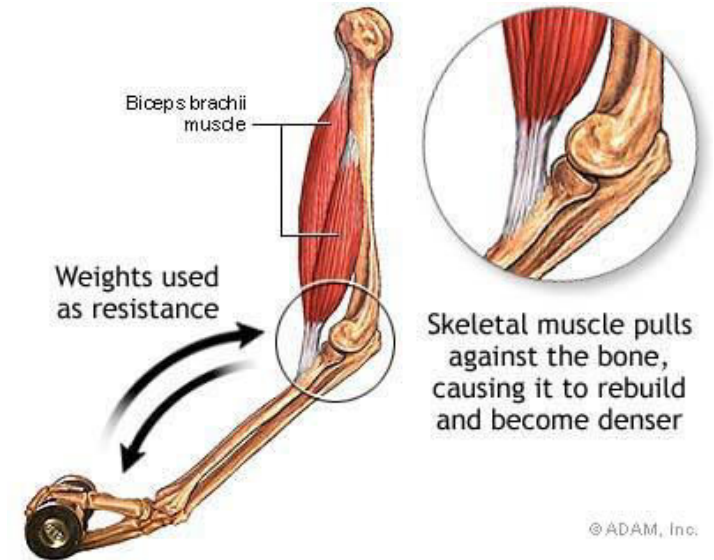
Guidelines for Physical Fitness



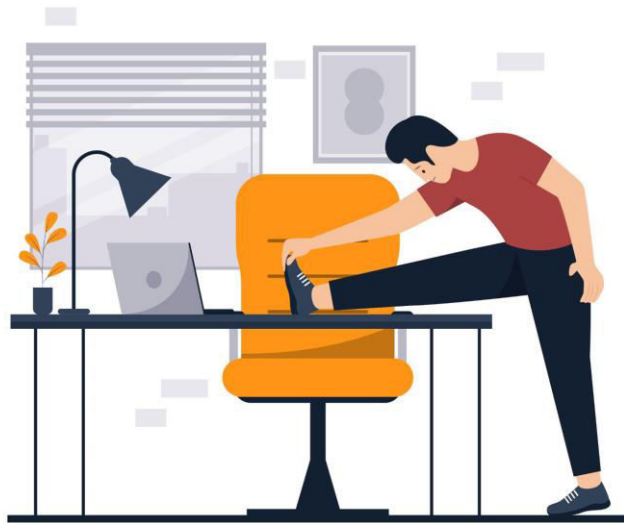
Type of activity:

Resistance (Strength) – performed at a controlled speed & through a full range of motion

- **Frequency:** 2-3 days/week
- **Duration:** enough to enhance muscle strength & improves body composition
- **Intensity:** 8-12 repetitions of different exercises



Guidelines for Physical Fitness

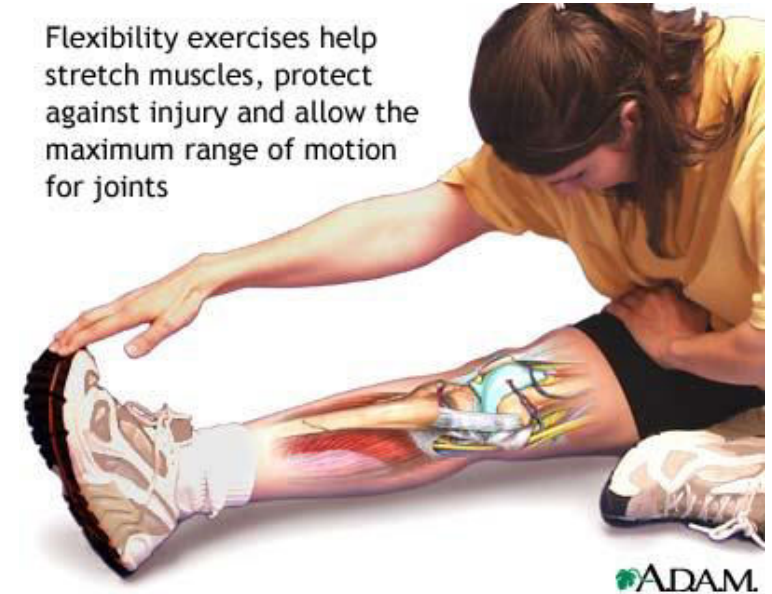


Type of activity:




Flexibility (Stretching) – activity that uses major muscle groups

- **Frequency:** 2-3 days/week
- **Duration:** enough to develop & maintain a full range of motion
- **Intensity:** 4 repetitions of 10-30 seconds per muscle group

Flexibility exercises help stretch muscles, protect against injury and allow the maximum range of motion for joints



Guidelines for Physical Fitness

	Cardiorespiratory	Strength	Flexibility
Type of Activity	 <p>Aerobic activity that uses large-muscle groups and can be maintained continuously</p>	 <p>Resistance activity that is performed at a controlled speed and through a full range of motion</p>	 <p>Stretching activity that uses the major muscle groups</p>
Frequency	3 to 5 days per week	2 to 3 days per week	2 to 3 days per week
Intensity	55 to 90% of maximum heart rate	Enough to enhance muscle strength and improve body composition	Enough to develop and maintain a full range of motion
Duration	20 to 60 minutes	8 to 12 repetitions of 8 to 10 different exercises (minimum)	4 repetitions of 10 to 30 seconds per muscle group (minimum)
Examples	Running, cycling, swimming, in-line skating, rowing, power walking, cross-country skiing, kickboxing, jumping rope; sports activities such as basketball, soccer, racquetball, tennis, volleyball	Pull-ups, push-ups, weight lifting, pilates	Yoga

Levels of Physical Activity Intensity Compared

Level of Intensity	Breathing and/or Heart Rate	Perceived Exertion (on a Scale of 0 to 10)	Talk Test	Energy Expenditure
Light	Little to no increase	<5	Able to sing	<3.5 kcal/min
Moderate	Some increase	5 or 6	Able to have a conversation	3.5 to 7 kcal/min
Vigorous	Large increase	7 or 8	Conversation is difficult or "broken"	>7 kcal/min

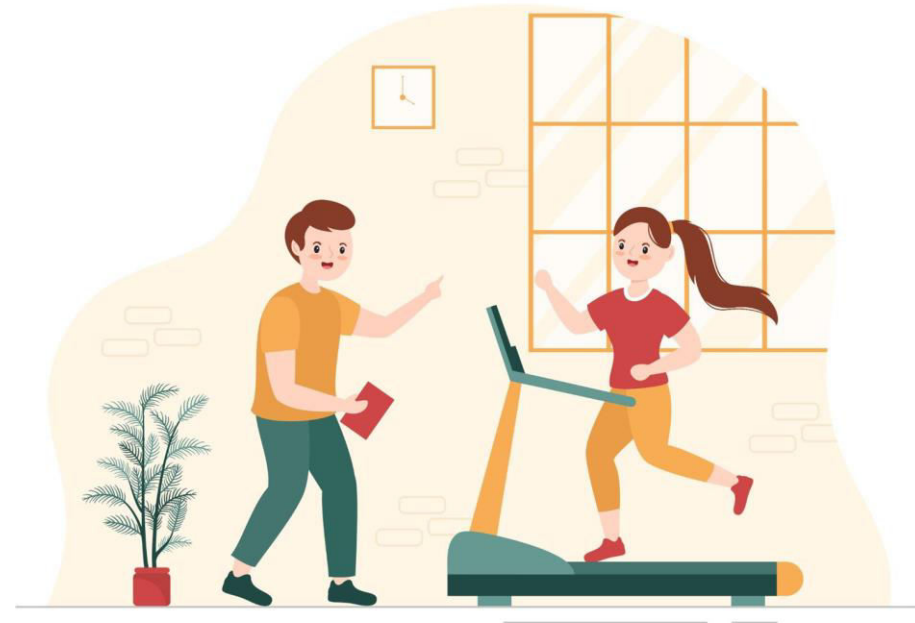
SOURCE: Centers for Disease Control and Prevention, www.cdc.gov/physicalactivity/everyone updated March 30, 2011.

Physical Activity and Calories

Light aerobic exercise (<5 calories/minute):
baseball, walking, golf

Moderate aerobic exercise (5-10 calories/minute):
basketball, football, aerobics, running, swimming,
weight training, tennis

Moderate to heavy aerobic exercise (>10
calories/minute): fast bicycling, rope skipping,
running, skiing, fast walking



Key Recommendations



Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being, and a healthy body weight.

To reduce the risk of chronic disease in adulthood: Engage in at least *30 minutes of moderate-intensity* physical activity, above usual activity, at work or home on most days of the week.

Greater health benefits can be obtained by engaging in physical activity of more vigorous intensity or longer durations.

Key Recommendations

To help manage body weight and prevent weight gain in adulthood:

Engage in *approximately 60 minutes of moderate to vigorous-intensity* activity on most days of the week while not exceeding caloric intake requirements.

To sustain weight loss in adulthood:

Participate in *at least 60 to 90 minutes of daily moderate-intensity* physical activity while not exceeding caloric intake requirements. Some people may need to consult with a healthcare provider before participating in this level of activity.

Achieve physical fitness by including:

- Cardiovascular conditioning
- Stretching exercises for flexibility
- Resistance exercises or calisthenics (aerobics) for muscle strength

Key Recommendations for Specific Population Groups



Children and adolescents:

Engage in *at least 60 minutes* of physical activity on preferably all days of the week.

Pregnant women:

In the absence of complications, *incorporate 30 minutes or more of moderate-intensity* physical activity on most, if not all, days of the week. Avoid activities with a high risk of falling or abdominal trauma.

Breastfeeding women:

Be aware that neither acute nor regular exercise adversely affects the mother's ability to successfully breastfeed.

Older adults:

Participate in regular physical activity to reduce functional declines associated with aging and to achieve the other benefits of physical activity identified for all adults.

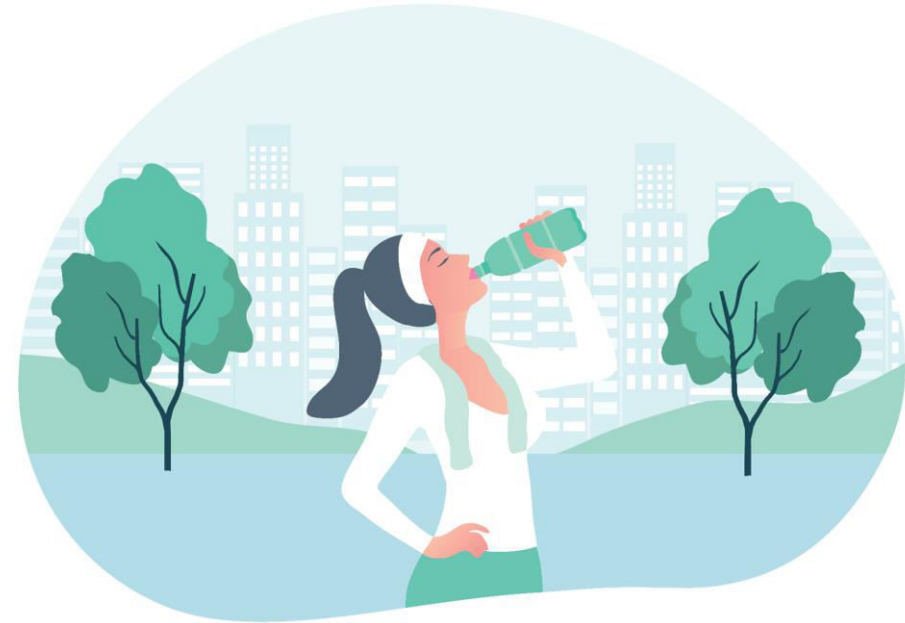
Water Intake

Physical activity increases the body's need for water. People should drink in response to thirst, and consume enough water to replace the amount lost in sweat.

Rule of thumb:

2 cups of water 15-20 minutes before an event

~½ cup every 15 minutes during the event



Sports Drinks/Fluid Replacers



Beverages that contain a weak solution of CHO, sodium, and other electrolytes appear to improve endurance and hydration status during prolonged, **intense events that last > 1 hour.**

Sports drinks may be consumed in addition to water and NOT as a replacement for water.

Steroids

Synthetic derivatives of the male hormone testosterone used in dangerous forms (syringes and pills) and doses.

- Increases muscles and decrease fat mass
- Increases muscle strength even without resistance training
- Classified as *controlled substances* by the US Congress (like drugs)
- Has many side effects on reproductive organs, the mind (aggression and hostility), heart, and blood cholesterol



Information For Your Interest



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For Your Information Only

Calorie-Burning Chart for Various Activities

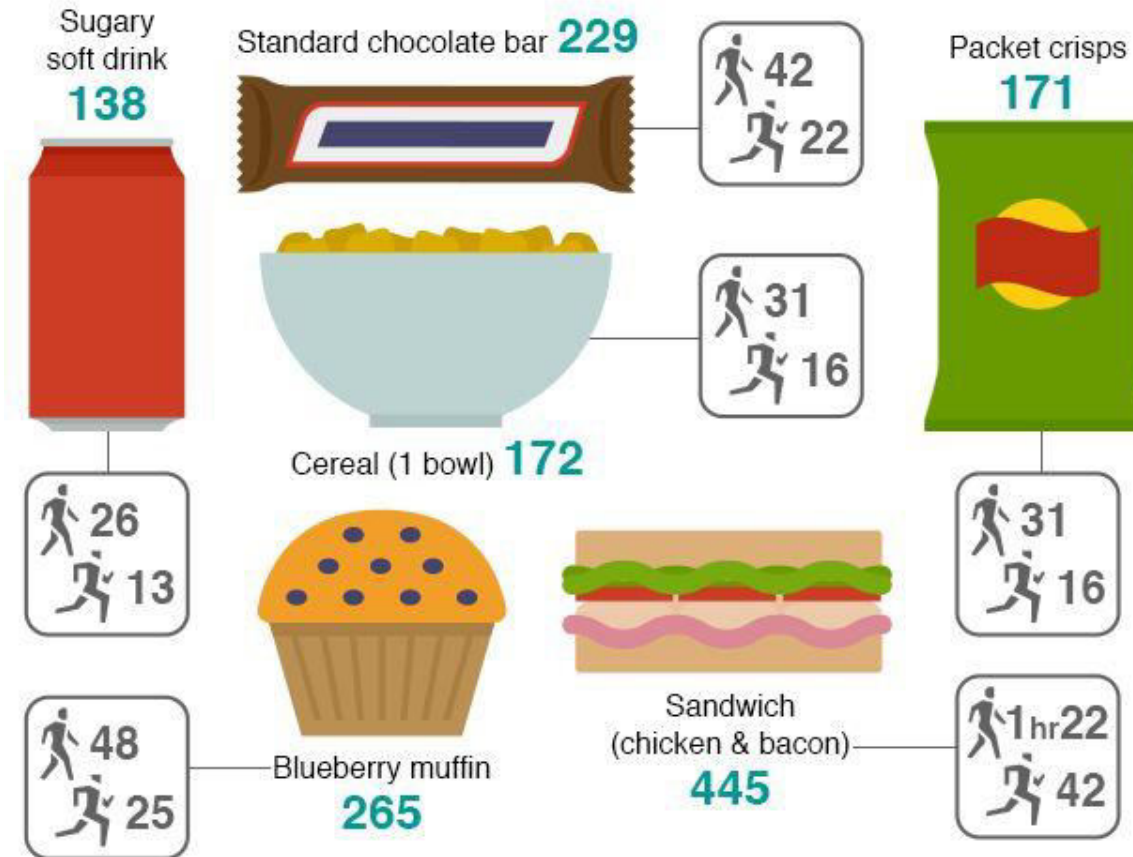
Approximate calories burned, per hour, by a 150-pound woman

<i>Exercise</i>	<i>Calories/hour</i>	<i>Exercise</i>	<i>Calories/hour</i>
Sleeping	55	Water Aerobics	400+
Eating	85	Skating/blading	420+
Sewing	85	Dancing, aerobic	420+
Knitting	85	Aerobics	450+
Sitting	85	Bicycling, moderate	450+
Standing	100	Jogging, 5mph	500+
Driving	110	Gardening, digging	500+
Office Work	140	Swimming, active	500+
Housework, moderate	60+	Cross country ski machine	500+
Golf, with trolley	180	Hiking	500+
Golf, without trolley	240	Step Aerobics	550+
Gardening, planting	250	Rowing	550+
Dancing, ballroom	260	Power Walking	600+
Walking, 3mph	280+	Cycling, studio	650
Table Tennis	290+	Squash	650+
Gardening, hoeing etc.	350+	Skipping with rope	700+
Tennis	350+	Running	700+

For Your Information Only

How much exercise does it take to burn off calories?

Time it takes to burn off calories in minutes:  Walking (3-5mph)  Running (5mph)





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Pre-Game Meals



300-kcalorie meal
1 large apple
4 saltine crackers
1½ tbs reduced-fat
peanut butter



500-kcalorie meal
1 large whole-wheat bagel
2 tbs jelly
1½ c low-fat milk



750-kcalorie meal
1 large baked potato
2 tsp margarine
1 c steamed broccoli
1 c mixed carrots and green
peas
5 vanilla wafers
1½ c apple or pineapple juice

Choosing a Diet



Breakfast

1 c shredded wheat with
low-fat milk and banana.
2 slices whole-wheat toast
with jelly.
1½ c orange juice.



Lunch

2 turkey sandwiches.
1½ c low-fat milk.
Large bunch of grapes.



Snack

3 c plain popcorn.
A smoothie made from:
1½ c apple juice.
1½ frozen banana.



Dinner

Salad: 1 c spinach, carrots,
and mushrooms with
½ c garbanzo beans,
1 tbs sunflower seeds, and
1 tbs ranch salad dressing.
1 c spaghetti with meat sauce.
1 c green beans.
1 corn on the cob.
2 slices Italian bread.
4 tsp butter.
1 piece angel food cake with
fresh strawberries and
whipping cream
1 c low-fat milk.

Total kcal: 3000

63% kcal from carbohydrate
22% kcal from fat
15% kcal from protein

All vitamin and mineral intakes exceed
the RDA for both men and women.

Supplements



Ergogenic aids

Protein powders OR adequate diet

Amino acid supplements

Creatine: Helps in fatty acid oxidation to release

Energy: Caffeine

Oxygenated water

Anabolic Steroids: Side Effects and Adverse Reactions

Mind

- Extreme aggression with hostility ("steroid rage"); mood swings; anxiety; dizziness; drowsiness; unpredictability; insomnia; psychotic depression; personality changes, suicidal thoughts

Face and Hair

- Swollen appearance; greasy skin; severe, scarring acne; mouth and tongue soreness; yellowing of whites of eyes (jaundice)
- In females, male-pattern hair loss and increased growth of face and body hair

Voice

- In females, irreversible deepening of voice

Chest

- In males, breathing difficulty, breast development
- In females, breast atrophy

Heart

- Heart disease; elevated or reduced heart rate; heart attack; stroke; hypertension; increased LDL; reduced HDL

Abdominal Organs

- Nausea; vomiting; bloody diarrhea; pain; edema; liver tumors (possibly cancerous); liver damage, disease, or rupture leading to fatal liver failure; kidney stones and damage; gallstones; frequent urination; possible rupture of aneurysm or hemorrhage

Blood

- Blood clots; high risk of blood poisoning; those who share needles risk contracting HIV (the AIDS virus) or other disease-causing organisms; septic shock (from injections)

Reproductive System

- In males, permanent shrinkage of testes; prostate enlargement with increased risk of cancer; sexual dysfunction; loss of fertility; excessive and painful erections
- In females, loss of menstruation and fertility; permanent enlargement of external genitalia; fetal damage, if pregnant

Muscles, Bones, and Connective Tissues

- Increased susceptibility to injury with delayed recovery times; cramps; tremors; seizurelike movements; injury at injection site
- In adolescents, failure to grow to normal height

Other

- Fatigue; increased risk of cancer