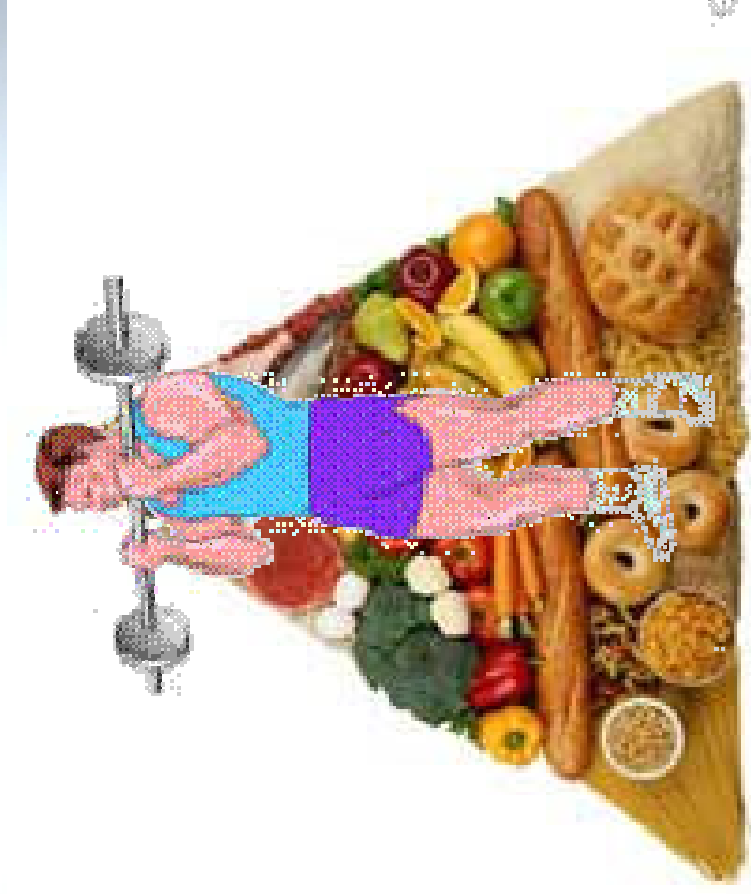


Exercise and a Healthy Diet



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Definition of Exercise

- **Exercise is physical activity that is:**
 - planned,
 - structured, and
 - repetitive
 - for the purpose of conditioning any part of the body.
- **Exercise is utilized to:**
 - improve health,
 - maintain fitness and
 - as a means of physical rehabilitation.



Purpose of Exercise – 1

• Exercise is useful in:

- preventing or treating coronary heart disease,
- osteoporosis,
- weakness,
- diabetes,
- obesity, and
- depression.

• Range of motion:

- for increasing or maintaining joint function.

• Strengthening exercises:

- provide appropriate resistance to the muscles to increase endurance and strength.

Purpose of Exercise - 2

- **Cardiac rehabilitation exercises:**
 - are developed and individualized to improve the cardiovascular system for prevention and rehabilitation of cardiac disorders and diseases.
- A well-balanced exercise program can improve general health, build endurance, and delay many of the effects of aging.
- The benefits of exercise not only improve physical health, but also enhance emotional well-being.

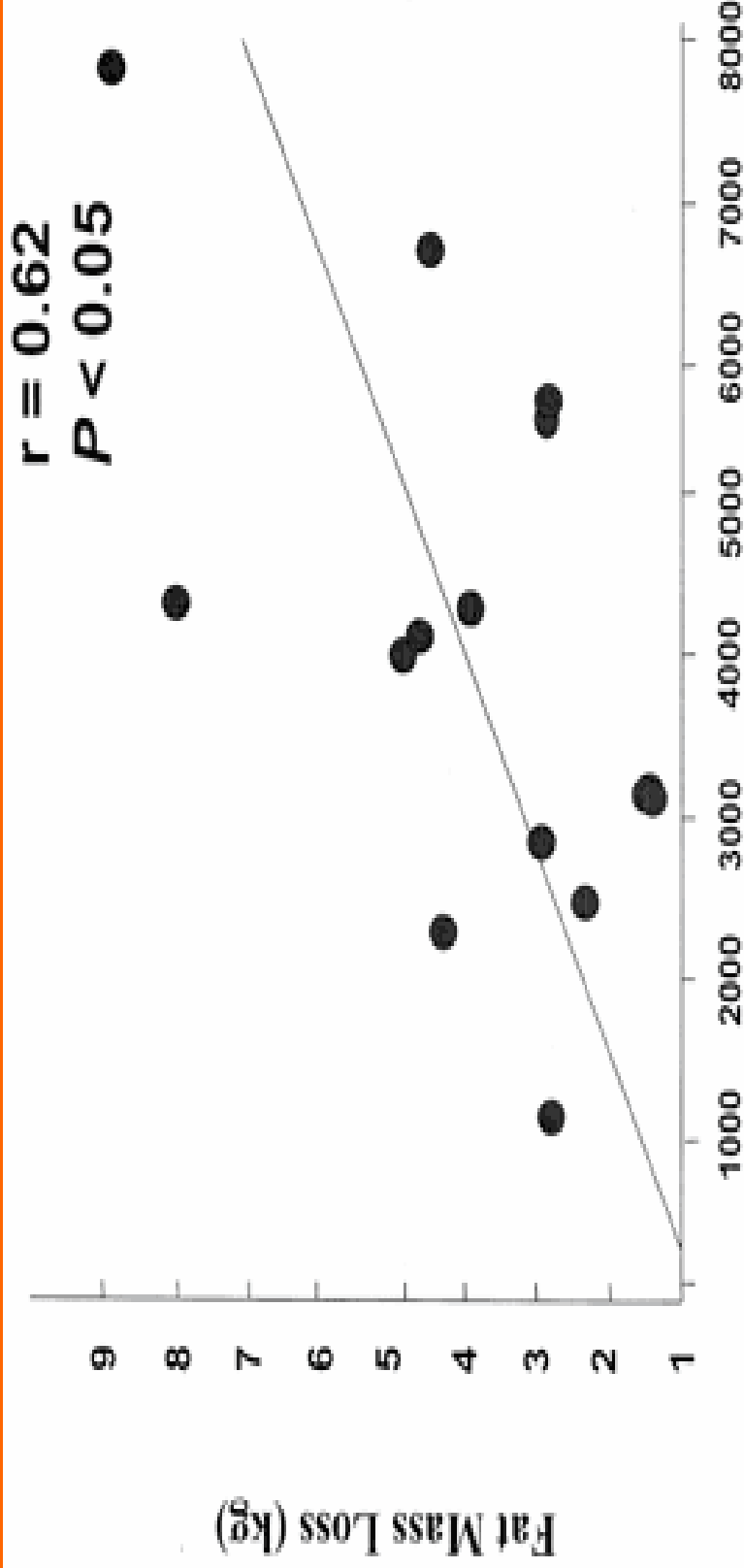
Types of Exercise

- **Range of motion exercise**
 - To improve the movement of joints.
- **Strengthening exercise**
 - To increase muscle strength and mass, bone strength & the body's metabolism.
- **Isometric exercise**
 - Only muscles contract, no joint motion.
- **Isotonic exercise**
 - Joint movement during muscle contraction.
- **Isokinetic exercise**
 - Utilises machines that control the speed of contraction within the range of movement.

Fat Mass Loss with Activity Related Energy Expenditure

Medscape®

www.medscape.com



Average Weekly Activity
Related Energy Expenditure

Source: Am Heart J © 2003 Mosby, Inc.

Cardiac Rehabilitation - 1

- Exercise can be very helpful in prevention and rehabilitation of cardiac disorders and disease.
- With an individually designed exercise program set at a level considered safe for that individual, people with symptoms of heart failure can substantially improve their fitness levels.
- The greatest benefit occurs as muscles improve the efficiency of their oxygen use, which reduces the need for the heart to pump as much blood.

Cardiac Rehabilitation - 2

- While such exercise doesn't appear to improve the condition of the heart itself, the increased fitness level reduces the total workload of the heart.
- The related increase in endurance should also translate into a generally more active lifestyle.
- Endurance or aerobic routines, such as running, brisk walking, cycling, or swimming, increase the strength and efficiency of the muscles of the heart.

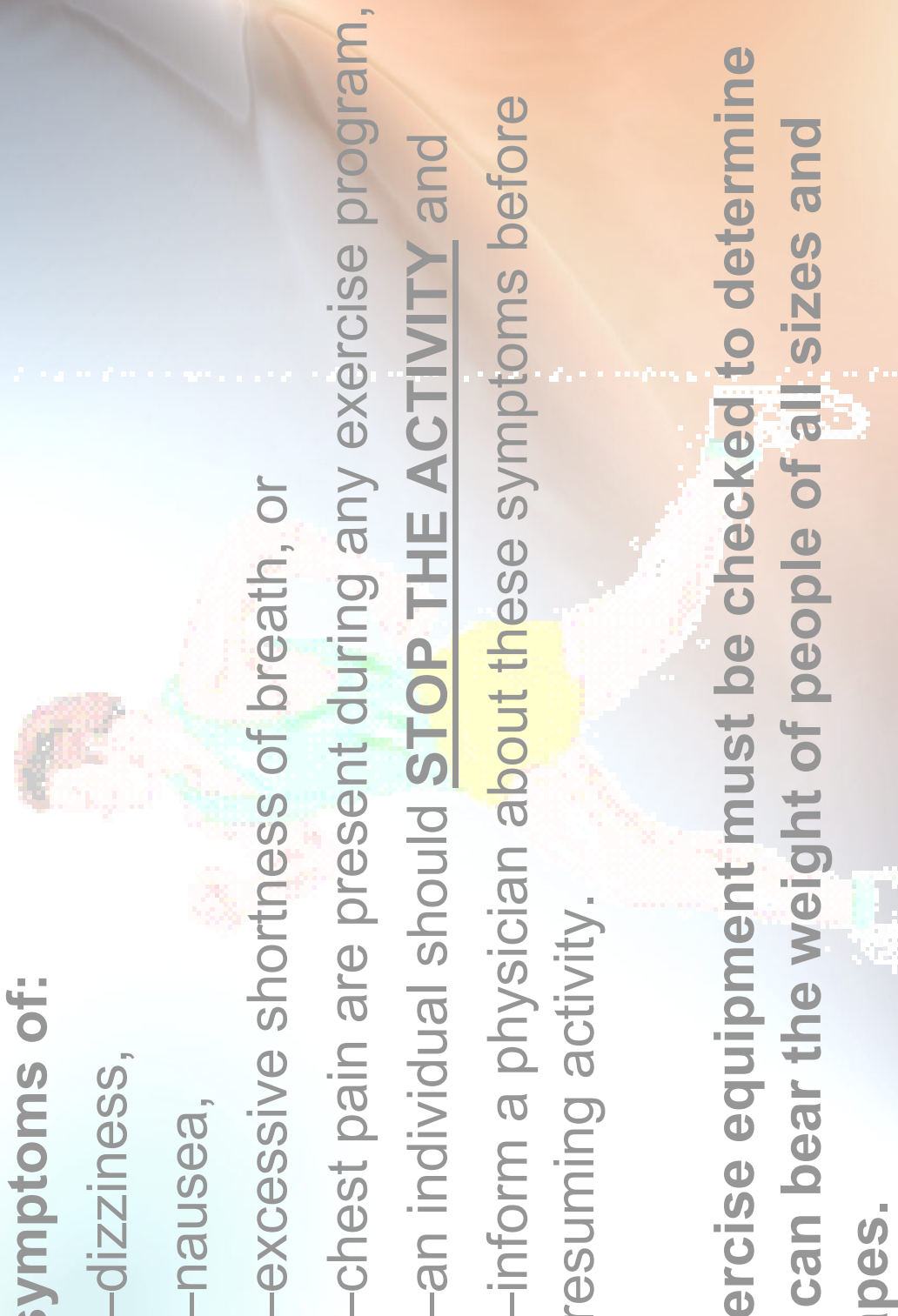
Exercise & Osteoporosis

- Increases bone mineral density (BMD).
- Even in puberty and adolescence – 5 or more hours per week of high-impact exercise (in girls).
- In adults 1-3% increase in BMD reported. Benefits uncertain.
- Higher incidence of low-BMD people with low occupational physical activity.

Precautions before Exercise

- Before beginning any exercise program:
 - An evaluation by a physician is recommended to rule out any potential health risks.
 - Once health and fitness are determined, and any or all physical restrictions identified, an individual's exercise program should be under the supervision of a health care professional.
 - This is especially the case when exercise is used as a form of rehabilitation.

Precautions during Exercise

- 
- If symptoms of:
 - dizziness,
 - nausea,
 - excessive shortness of breath, or
 - chest pain are present during any exercise program,
 - an individual should **STOP THE ACTIVITY** and
 - inform a physician about these symptoms before resuming activity.
 - Exercise equipment must be checked to determine if it can bear the weight of people of all sizes and shapes.

Risks of Exercise

- Improper warm up can lead to muscle strains.
- Over-exertion with not enough time between exercise sessions to recuperate can also lead to muscle strains, resulting in inactivity due to pain.
- Stress fractures are also a possibility if activities are strenuous over long periods of time without proper rest.
- Although exercise is safe for the majority of children and adults, there is still a need for further studies to identify potential risks.

Preparation for Exercise

- A physical examination by a physician is important to determine if strenuous exercise is appropriate or detrimental for an individual.
- Prior to the exercise program, proper stretching is important to prevent the possibility of soft tissue injury resulting from tight muscles, tendons, ligaments, and other joint-related structures.



Care After Exercise

- Proper cool down after exercise is important:
 - To reduce the occurrence of painful muscle spasms.
 - May also decrease frequency and intensity of muscle stiffness the day following any exercise program.

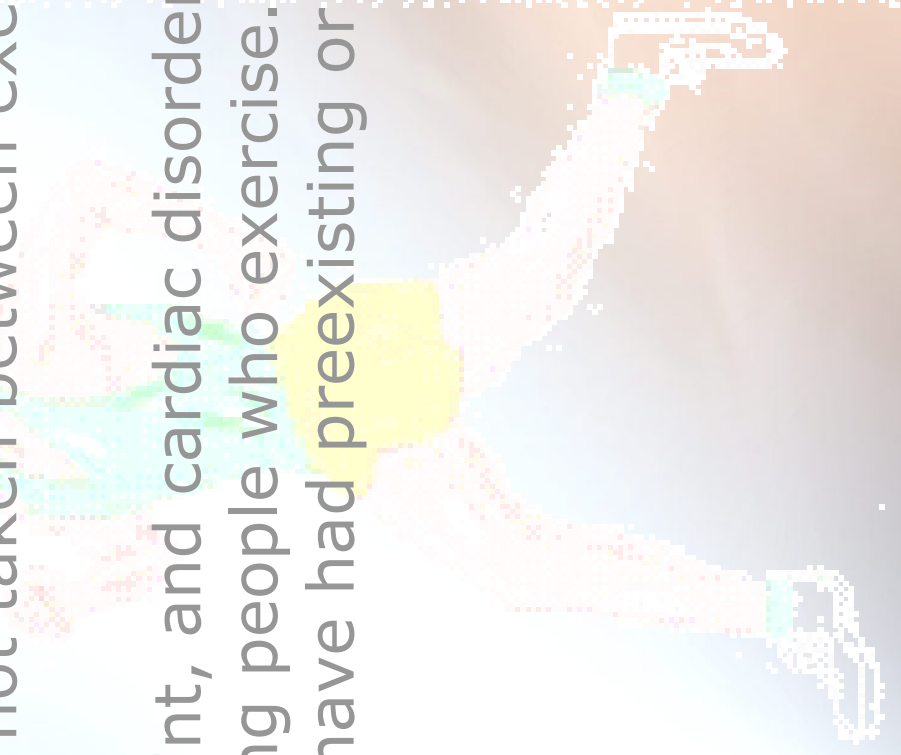


Normal Results of Exercise

- Significant health benefits are obtained by including a moderate amount of physical exercise in the form of an exercise prescription.
- Physical activity plays a positive role in preventing disease and improving overall health status.
- People of all ages, both male and female, benefit from regular physical activity.
- Regular exercise also provides significant psychological benefits and improves quality of life.

Abnormal Results of Exercise

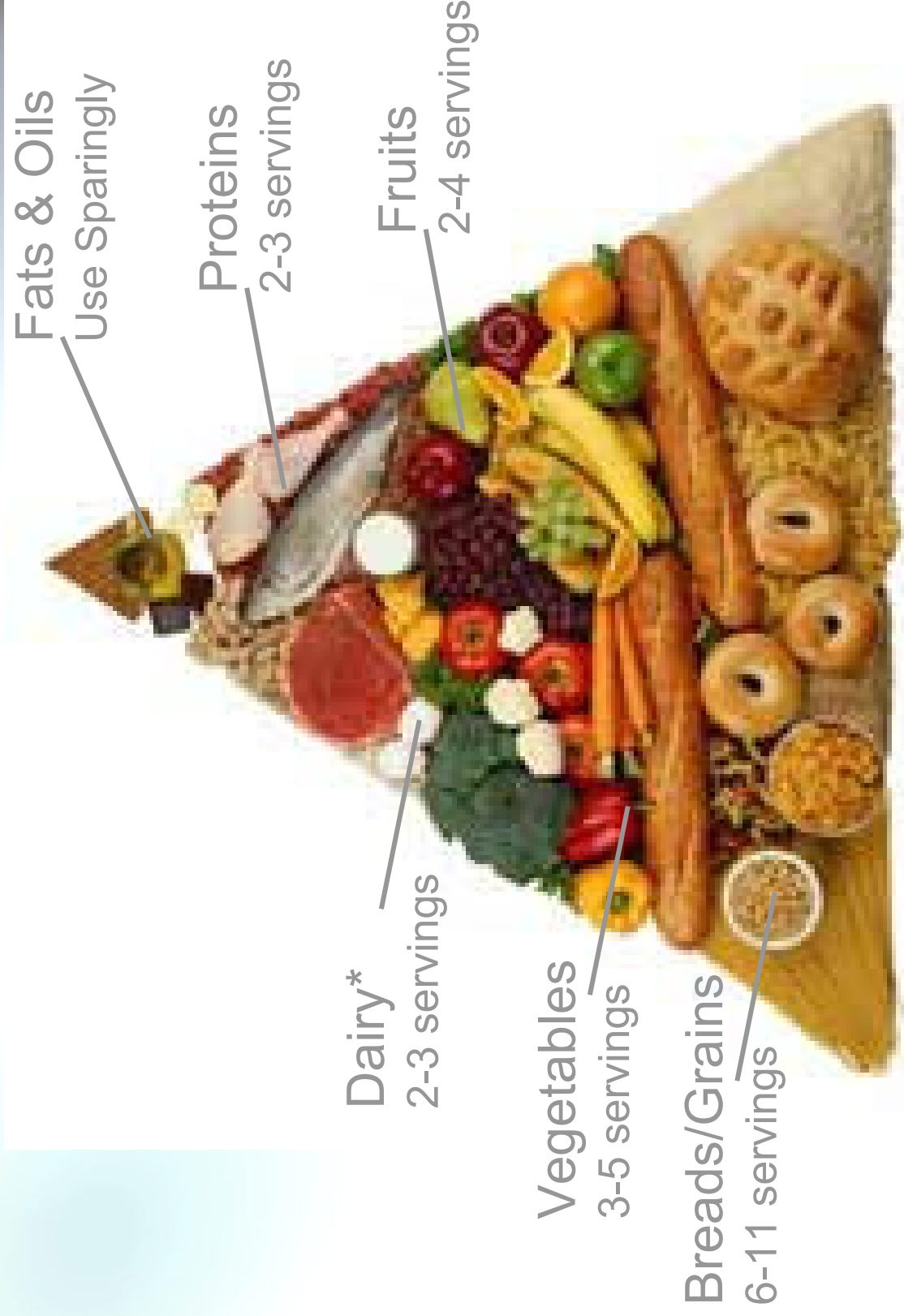
- There is a possibility of exercise burnout if an exercise program is not varied and adequate rest periods are not taken between exercise sessions.
- Muscle, joint, and cardiac disorders have been noted among people who exercise. However, they often have had preexisting or underlying illnesses.



Exercise & Metabolic Rate

- Dieting decreases BMR (temporarily) - <1000 kiloCalories/day.
- Exercise plus dieting maintains BMR & loss of fat-free mass is limited to 20-30%.
- Eating & exercise both increase BMR, especially in the short-term.
- Aerobic activity performed a minimum of 3 times a week with a gradual increase in intensity and frequency is suggested.

A Healthy Diet



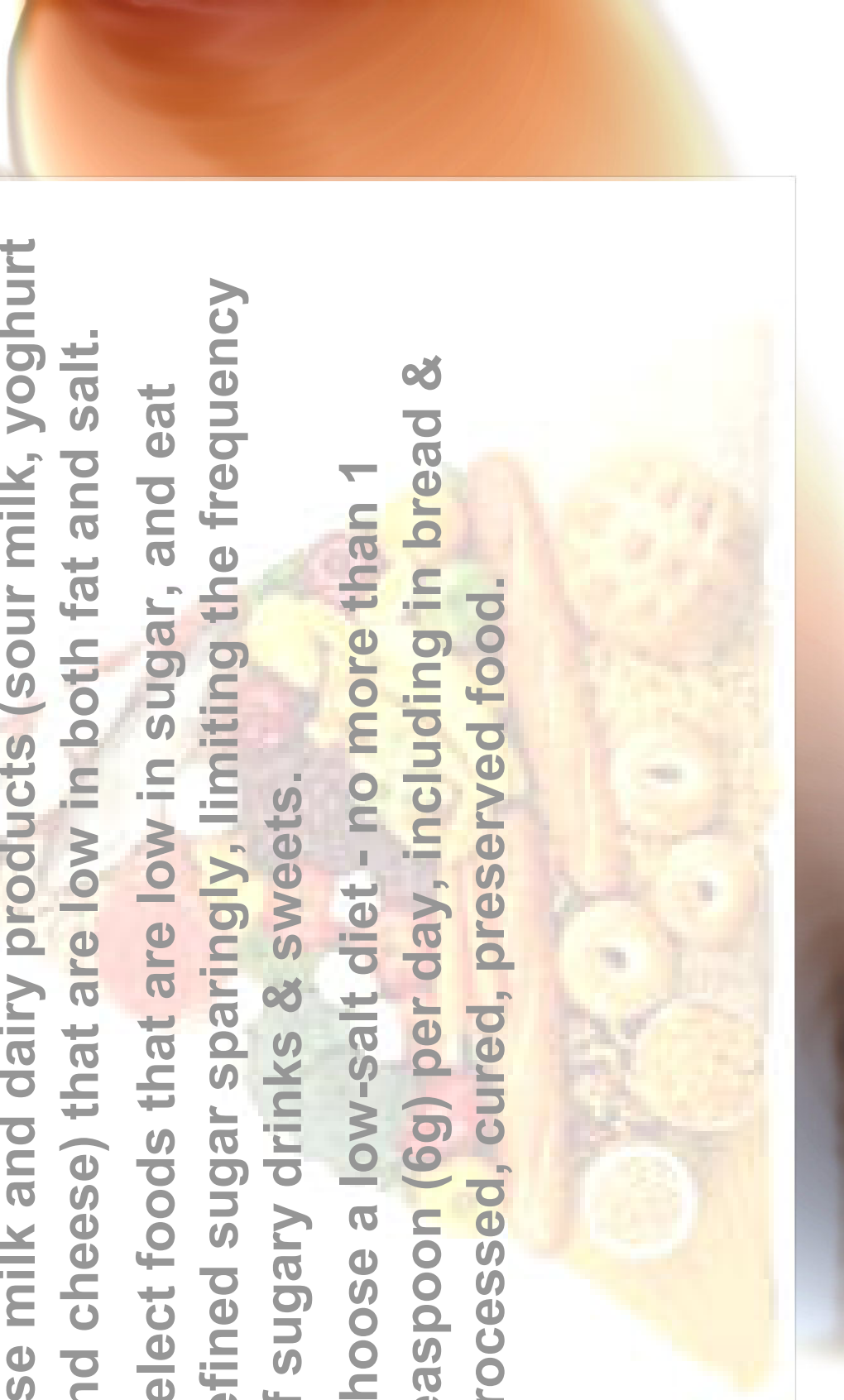
* 3 servings for women who are pregnant or breastfeeding, teenagers, and adults under 24.

A Healthy Diet (CINDI) - 1

1. Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.
2. Eat bread, grains, pasta, rice or potatoes several times a day.
3. Eat a variety of vegetables and fruits, preferably fresh and local, several times per day (at least 400g per day).
4. Maintain body weight between the recommended limits (BMI of 20-25) by taking moderate levels of physical activity, preferably daily.
5. Control fat intake (not more than 30% of daily energy) and replace most saturated fats with unsaturated vegetable oils or soft margarines.

A Healthy Diet (CINDI) - 2

6. Replace fatty meat and meat products with beans, legumes, lentils, fish, poultry or lean meat.
7. Use milk and dairy products (sour milk, yoghurt and cheese) that are low in both fat and salt.
8. Select foods that are low in sugar, and eat refined sugar sparingly, limiting the frequency of sugary drinks & sweets.
9. Choose a low-salt diet - no more than 1 teaspoon (6g) per day, including in bread & processed, cured, preserved food.



A Healthy Diet (CINDI) - 3

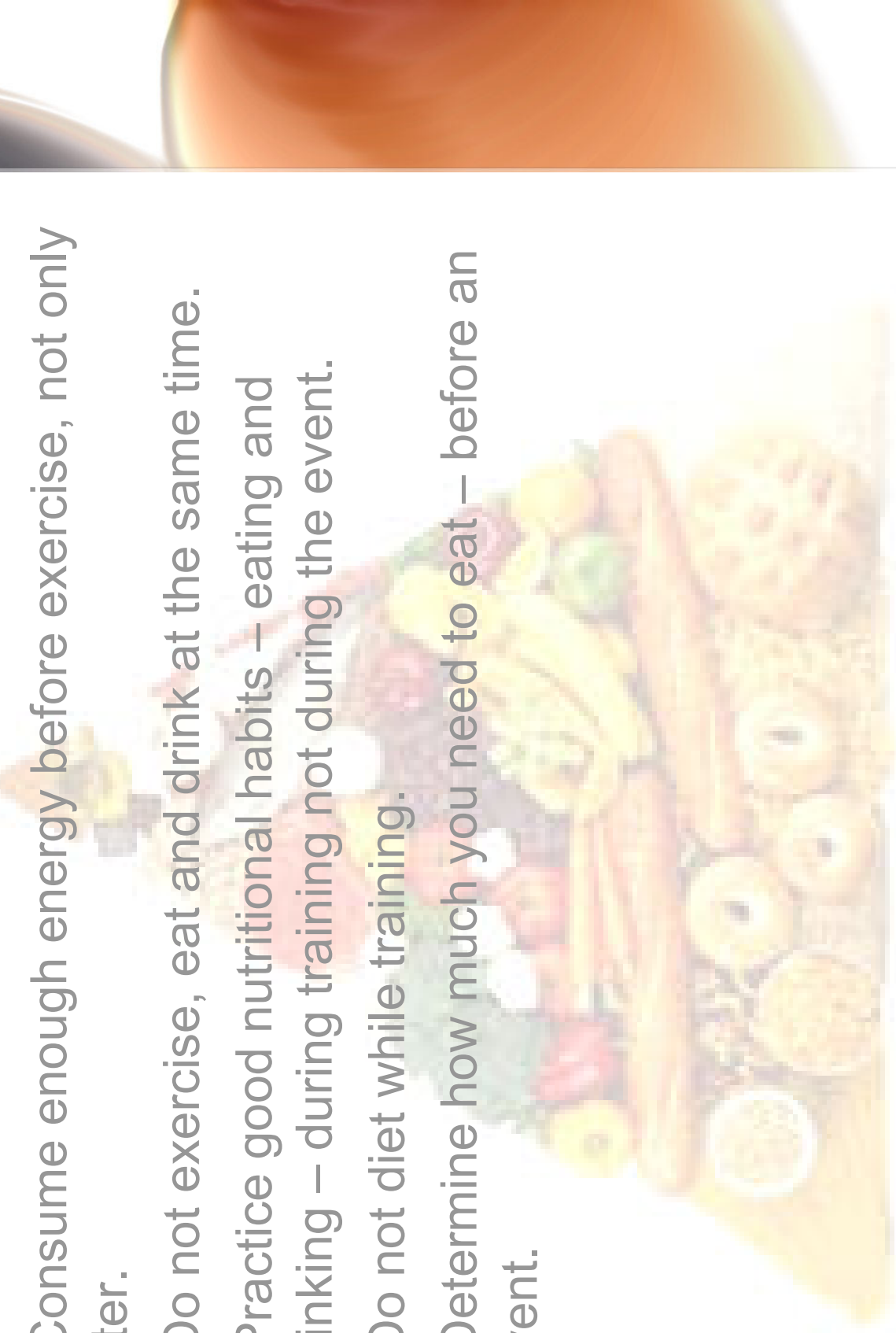
10. If alcohol is consumed, limit intake to no more than 2 drinks (each containing 10g of alcohol) per day.
11. Prepare food in a safe and hygienic way. Steam, bake, boil or microwave to help reduce the amount of added fat.
12. Promote exclusive breast-feeding and the introduction of safe and adequate complementary foods from the age of about 6 months, but not before 4 months, while breast-feeding continues during the first years of life.



Nutrition for Exercise

•Important facts to remember:

- Consume enough energy before exercise, not only after.
- Do not exercise, eat and drink at the same time.
- Practice good nutritional habits – eating and drinking – during training not during the event.
- Do not diet while training.
- Determine how much you need to eat – before an event.



Determining how much to eat

•Track your intake for three days – do not change anything. Then check:

- Can you train without undue fatigue?
- Do you have a fast recovery between training sessions?
- Are you maintaining your body composition?
- Do you have optimal biological functioning?
- Is there an absence of health and performance issues?

If the answer is “yes” to any of these questions, then there are changes you can make in your eating patterns, food choices and food timing to improve your health, ability to train and achieve peak performance in your sport.

Pre-Workout Fluid & Food Guidelines

- For high intensity exercise try to eat a few hours before.
- For long, slow distance exercise eat something right before exercise.
- Choose food that is:
 - Rich in complex carbohydrates
 - Low in fibre, fat and protein.
- Good food choices include:
 - White bread, wheat crackers, scones
 - Low fibre cereals, with milk or yoghurt
 - Vegetable and fruit juices, flavoured milk/soy milk and yoghurt/yoghurt drinks.
- Make sure you are well hydrated.

During Workout Fluid & Food Guidelines

- If activity is vigorous and for longer than 90 minutes, take in some carbohydrates with your fluids, e.g. sport drink or diluted fruit juice.
- For prolonged endurance events or activities (2 hours or more), eat small carbohydrate rich snacks (approx. 15-20 gms/60-80 kCal of carb.) every 20 minutes or so. E.g. dried fruits, oatmeal cookies, energy or sports drinks.
- Carbohydrate ingestion during exercise has the potential to delay fatigue and enhance exercise performance.



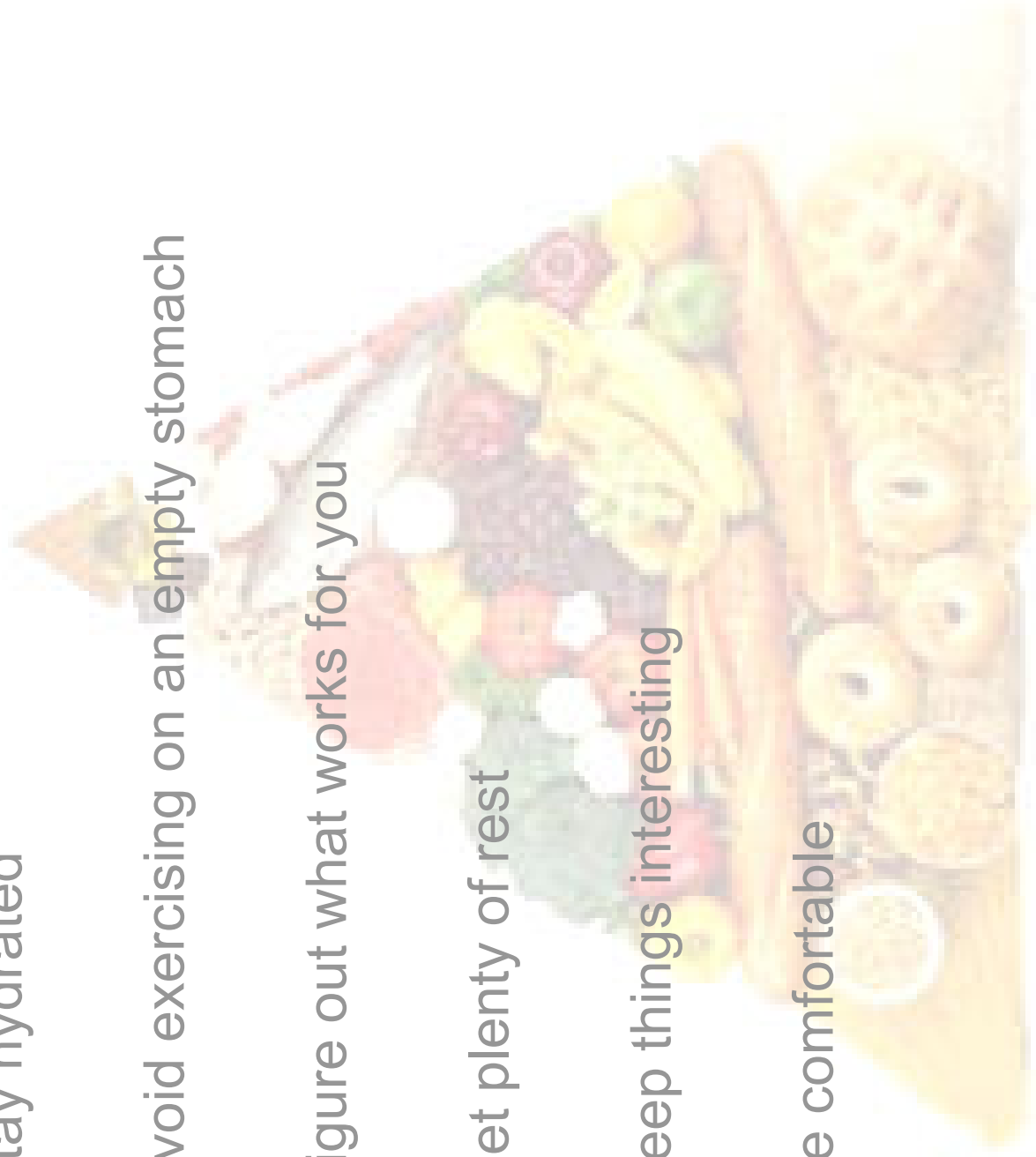
Post-Workout Fluid & Food Guidelines

- Muscle glycogen (stored carbohydrate) may be very reduced after 45 minutes of moderate intensity exercise.
- This may occur in:
 - Endurance athletes, runners, rowers, cyclists
 - In team sports such as football
 - In fitness and aerobics instructors
 - In resistance athletes e.g. weight trainers
 - In high intensity intermittent exercise e.g. interval sprint training.

The tougher the exercise, the more important it is to refuel, to refill the carbohydrate stores as soon as possible after workouts or training.

Tips for Better Workouts

1. Stay hydrated
2. Avoid exercising on an empty stomach
3. Figure out what works for you
4. Get plenty of rest
5. Keep things interesting
6. Be comfortable





Thank you