

# Physical Activity and Childhood Obesity

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June 20, 2012



**Children's National**  
*Medical Center*

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- **Accreditation**
- This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of The George Washington University School of Medicine and Health Sciences is accredited by the ACCME to provide continuing medical education for physicians
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- Participants will be required to certify attendance or participation on an hour for hour basis.

# Disclosure Statement

- Upon disclosure, the speakers indicated that they did not have any relevant financial relationships to disclose

# Objectives

- Discuss why physical activity is important for children of all ages
- Discuss how to prevent and manage obesity with physical activity
- Provide resources and practical tips to provide parents
- Provide pediatric exercise recommendations for overweight/obese children

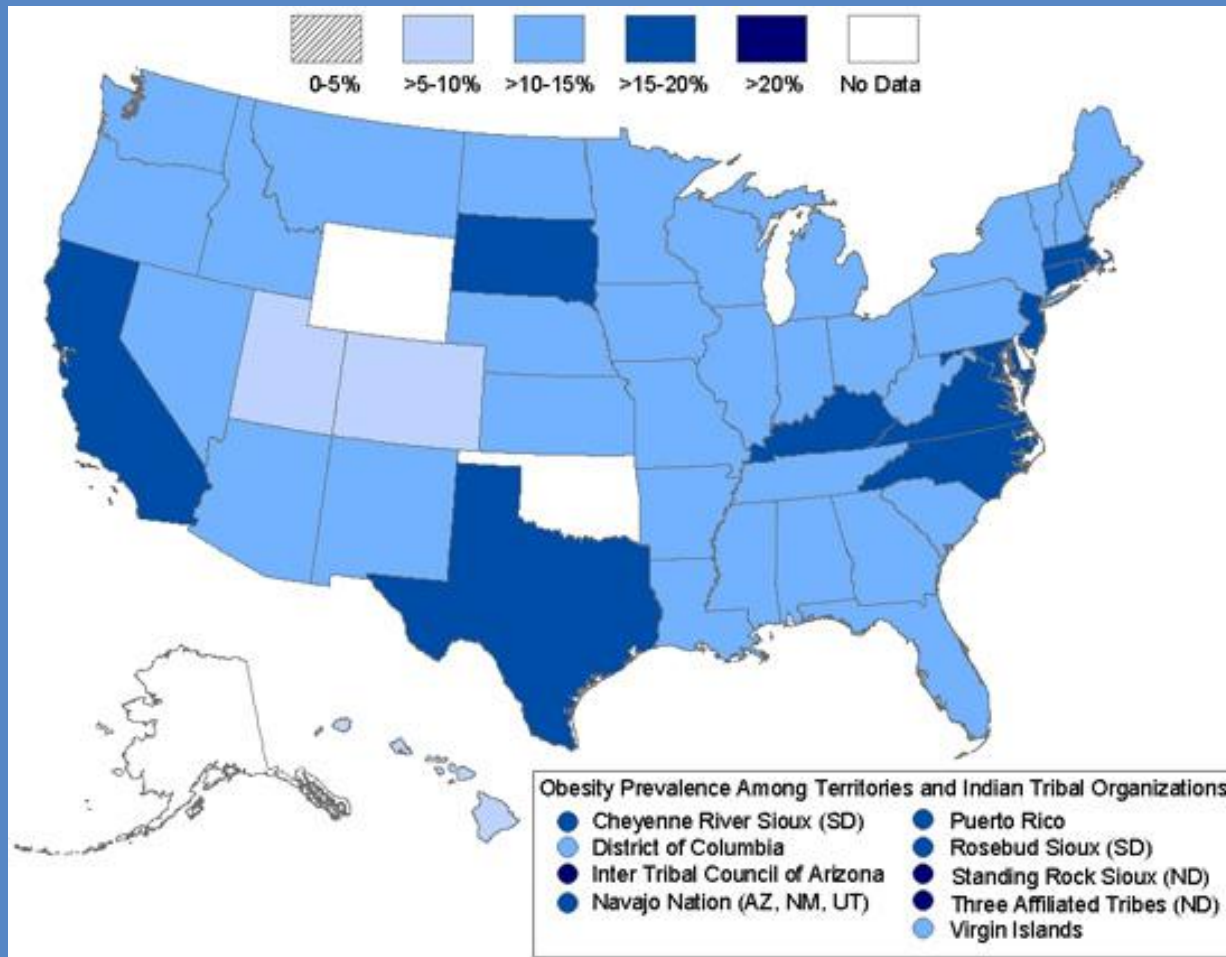
# Prevalence

- 1 of 3 children are overweight or obese before their 5th birthday
- 1 of 7 low-income preschool aged children are obese
- 17% of all US children & adolescents
- Where do we rank?
  - DC: 45
  - Maryland: 26
  - VA:31



# Prevalence

2009 State Prevalence Among Low-Income Children Aged 2 to 4 years



CDC

# Childhood Obesity Facts

- 25% 4 hours or more watching television
- 29% of high school students participated in 60 minutes of physical activity
  - 31% attended physical education class daily



# Prevention

Who?

- Targeting: BMI 85>% with risks

How?

- Physical activity, healthy eating and monitoring



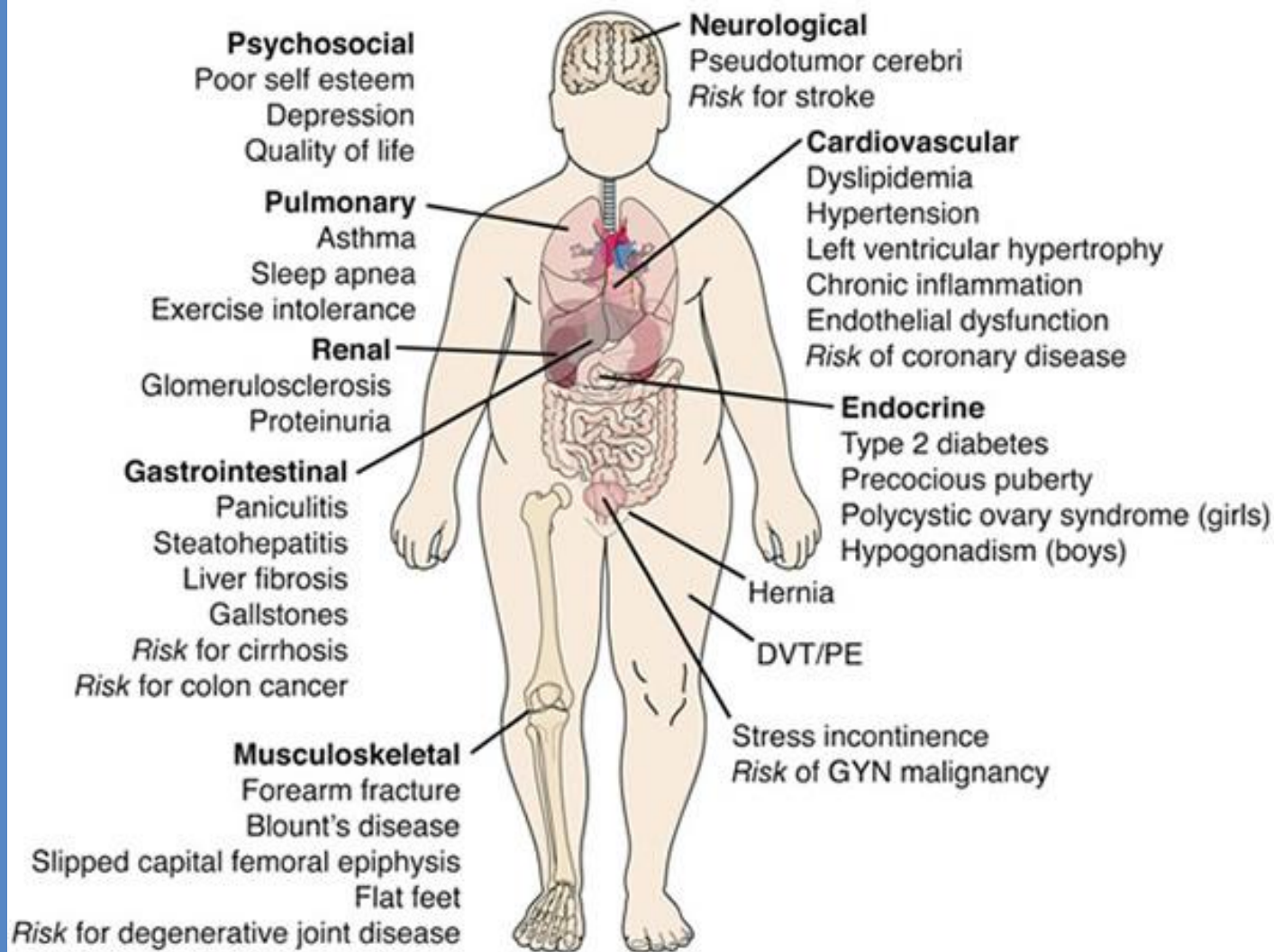


# Risk Factors

- High calorie diet
- **Lack of physical activity**
- Family history
- Psychological factors
- Family factors
- Socioeconomic factors



## Complications of Childhood Obesity



# Musculoskeletal Complications

## Forearm Fracture

- Fall on outstretched hand
- Decreased bone mineral density



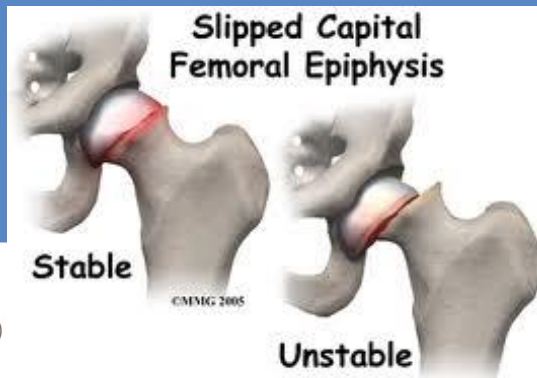
## Blount's disease

- Bowing of tibia of unknown cause
- Associated with early walking and obesity
- Surgical intervention usually required



# Musculoskeletal Complications

- Slipped capital femoral epiphysis
  - Weak proximal femoral physis growth plate
  - Displaced from normal position
  - Approx 75% of patients obese
- Flat feet
  - Longitudinal arch decreases or disappears
  - Normal rapid spontaneous plantar arch development between 2-6 years
  - Higher prevalence in obese patients
- Risk for degenerative joint disease



# Diagnoses

- Growth disorders
  - Hypothyroidism
- Genetic disorders
- Diabetes
- Sleep Apnea
- Gastrointestinal disorders
- Orthopedic disorders



# Physician Intervention

- < 50% assess BMI percentiles regularly
- 58% report "never, rarely or sometimes" tracked patients for weight or weight related behaviors
- Pediatricians more likely to assess weight status, provide behavior counseling





# Benefits of Physical Activity

## Physical activity helps.....

- Build & maintain healthy bones and muscles
- Reduce the risk of developing obesity & chronic diseases
- Reduce feelings of depression and anxiety
- Improve students' academic performance



# General Physical Activity Guidelines

- Infants- preschoolers
  - 60 minutes daily
  - Sedentary no more than 60 min at a time
- 6–17 years
  - 60 min daily





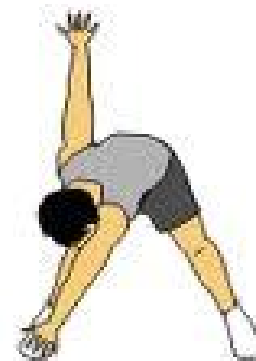
# Pediatric Exercise Recommendations

- Warm up phase
  - 10 minutes
- Exercise phase above threshold
  - 15-30 minutes
- Cool down phase
  - 5-7 minutes
- Proper hydration prior, during and after exercise



# Examples of Basic Warm-Up

- High knees
- Windmills
- Light jogging
  - Low impact - toes maintained on ground
- Trunk rotation
- Butterfly stretch
- Standing hamstring stretch



# Video

<http://www.monkeysee.com/play/1494-fitness-for-kids-warm-up-routine>

www.monkeysee.com/play/1494-fitness-for-kids-warm-up-routine

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### Fitness for Kids - Warm Up Routine

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# Importance of Proper Form

- Increased risk of injury
- Specificity of exercise
- Energy efficiency



# Stretching

- Performed on soft surfaces
- Focus on long and deep controlled breathing
- Do not stretch into pain
  - Stretch should be held 10-20 seconds, relax for 10 seconds, repeat stretch



# Physical Activity Should Include...

- 
- Aerobic activity
  - Most 60 minutes
  - Moderate 5-6/10 PRE
- Muscle strengthening
  - 3x week
- Bone strengthening
  - Impact activity
  - 3x week



PERCEIVED EXERTION INDEX	
10 9	SO TIRED, I CAN'T GO ANYMORE
8 7	REALLY TIRED
6 5	TIRED
4 3	A LITTLE TIRED
2 1	NOT TIRED AT ALL

Perceived Exertion Chart	
10	<b>Very Very Hard Activity</b> <i>Completely out of breath, unable to talk</i>
9	<b>Very Hard Activity</b> <i>Can speak only one word at a time</i>
7-8	<b>Hard Activity</b> <i>Out of breath, can speak a sentence or two</i>
4-6	<b>Moderate Activity</b> <i>Can still carry a conversation</i>
2-3	<b>Light Activity</b> <i>Breathing is easy</i>
1	<b>No Activity</b>



## RPE Scale for Kids





RPE stands for **Relative Perceived Exertion**. Relative Perceived Exertion means, "How hard do I feel I am exercising?" It is a tool you use to tell others how your body is feeling when you exercise. Kids who exercise in numbers 4-7 are getting moderate to vigorous exercise. That means your body is getting the right amount to be healthy! You should get 60 minutes of exercise in this range every day.

My Number...	My Face...	This what I may be thinking...	This is what my body may be doing...
1		This exercise is the same as resting.	I am getting ready to exercise, but I don't feel different yet.
2		This exercise isn't hard.	I am getting a little hot. I can still talk normally.
3		I am just beginning to feel like I am exercising.	I am feeling like my body is warming up.
4		I am starting to feel like I am exercising. I feel good!	I can almost talk in a regular voice, but it is getting harder!
5		This exercise is a good workout! I am really working hard.	My cheeks are getting pink. I am getting a little sweaty.

My Number...	My Face...	This what I may be thinking...	This is what my body may be doing...
6		I am exercising more than I thought. It is getting hard to do.	I feel like talking is getting harder – I have to stop sometimes for air.
7		This is pretty hard. I can exercise a little bit longer, then I'll stop.	I am getting really sweaty. My body is hot!
8		This exercise is really hard, but I'm not ready to quit.	I can talk a little, but not too much.
9		I need a break from this very, very hard exercise!	My face looks red. I feel like I need to stop.
10		I'm exercising too much! My body is making me stop now!	My heart is beating very fast and strong. I can't talk.

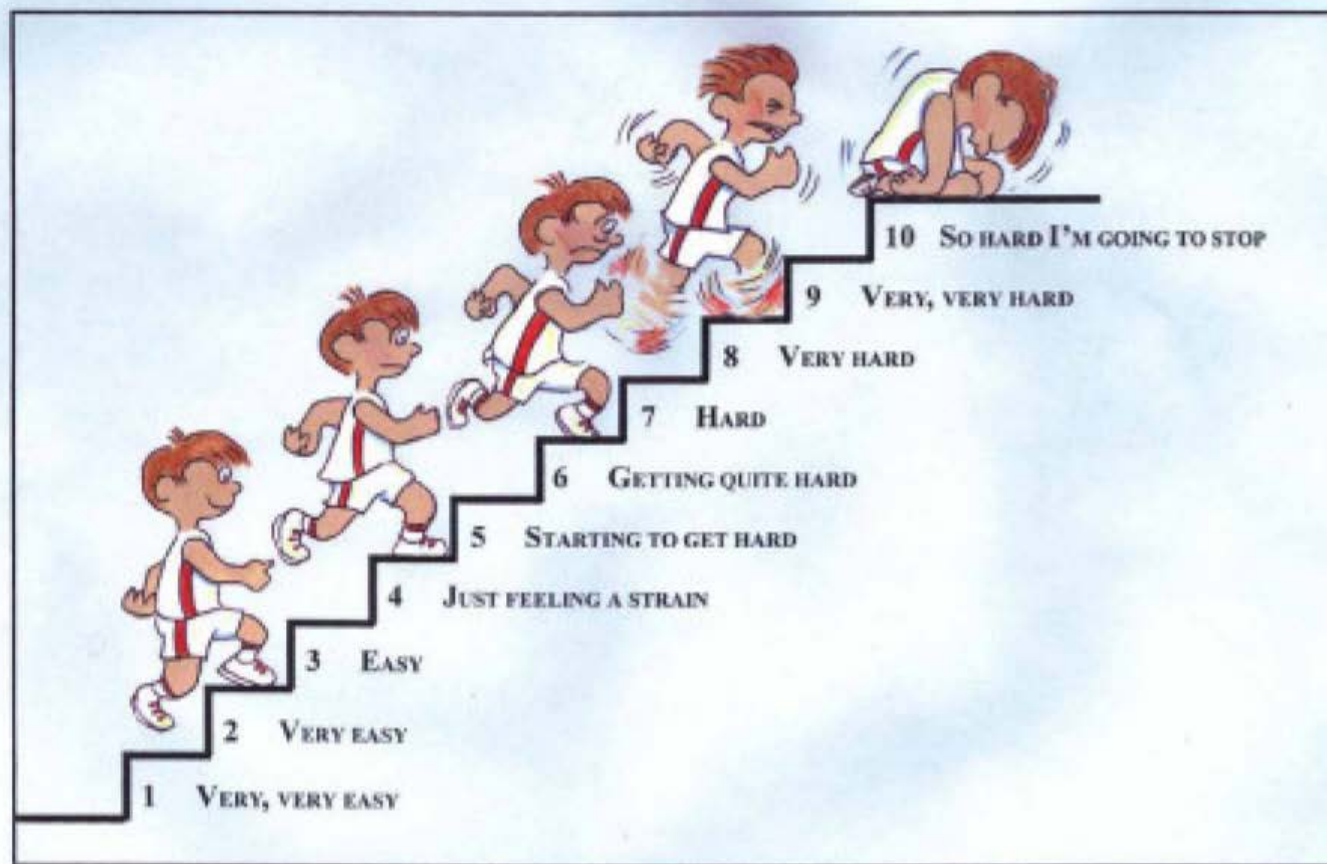


# Optimal Range

4		I am starting to feel like I am exercising. I feel good!	I can almost talk in a regular voice, but it is getting harder!
5		This exercise is a good workout! I am really working hard.	My cheeks are getting pink. I am getting a little sweaty.
6		I am exercising more than I thought. It is getting hard to do.	I feel like talking is getting harder – I have to stop sometimes for air.
7		This is pretty hard. I can exercise a little bit longer, then I'll stop.	I am getting really sweaty. My body is hot!



# Pictorial Children's Effort Rating Table



# Strength Training

- May start strength training when child is able to follow directions (about 7-8 years old)
  - Make it fun
    - Medicine balls, exercise balls
  - Safer to underestimate child's strength
  - Children who have difficulty in other sports may excel

# ACSM Resistance Training Guidelines

- 8 to 15 repetitions
- 1 to 3 sets
- Open and closed kinetic chain exercises
- 2x/week
- When learning new exercise use a light weight for practice to ensure correct form



# Beginner Exercise Programs

- Possibly for >95% BMI
- Avoid high-impact repetitive exercise
- Increased risk for joint pain, musculoskeletal injuries
- Non-impact workouts
- Start slowly
- Aquatic exercises



# Intermediate Exercise Programs

- Possibly for 85-95% BMI
- Low impact
- Light resistance
- Circuit training
- Not for those at greater risk of injury
  - Obese
  - Co-morbidities

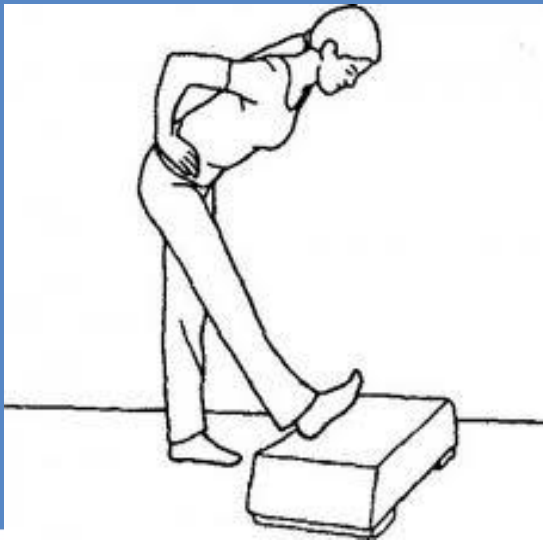


# Meet John

- 12 y/o M
- BMI 85%
- Enjoys playing video games, watching TV, eating fast food.
- Able to participate in 20 minutes of activity before requiring rest break
- No co-morbidities
- Patient and parent report a willingness to change

# John's Exercise Routine

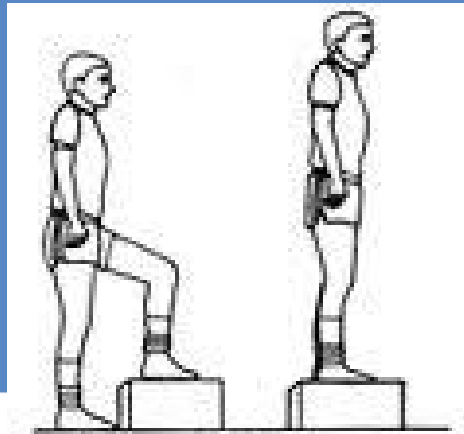
- Warm up
  - Hamstring stretch
  - Standing marching
  - Elbows to knees





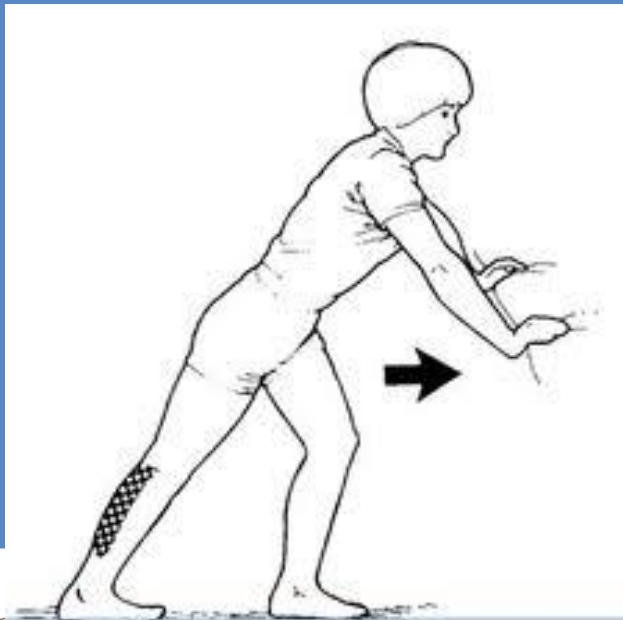
# John's Exercise Routine

- Exercises
  - Sit to stands x 10
  - Jumping jacks 2 x 20
  - Step ups 2 x 20
  - Bridging x 10



# John's Exercise Routine

- Cool down
  - Calf stretch
  - Walking
  - Butterfly stretch



# Fun Ways to Be Physically Active



Being a kid and being active is fun! Think of all the ways you like to be active in school, home, on vacation, at a friend's house, with your family. Getting an hour of physical activity a day is not problem when you take advantage of all the ways you can be active and have fun.

Here are some things you probably already enjoy that count as physical activity. Do you do any of these? Check the box if you do to remind you what you like when you feel like you're out of ideas.

- |   |  |
|---|--|
| <input type="checkbox"/> Ride your bike                   | <input type="checkbox"/> Practice karate                     |
| <input type="checkbox"/> Walk to school                   | <input type="checkbox"/> Play hopscotch                      |
| <input type="checkbox"/> Go out at recess and play        | <input type="checkbox"/> Go swimming                         |
| <input type="checkbox"/> Skateboard with your friends     | <input type="checkbox"/> Play tennis                         |
| <input type="checkbox"/> Play basketball                  | <input type="checkbox"/> Go to the park                      |
| <input type="checkbox"/> Jump rope                        | <input type="checkbox"/> Play softball, or baseball          |
| <input type="checkbox"/> Dance with your friends          | <input type="checkbox"/> Play soccer or kickball             |
| <input type="checkbox"/> Walk the dog                     | <input type="checkbox"/> Play catch with a ball or a frisbee |
| <input type="checkbox"/> Take a hike in your neighborhood | <input type="checkbox"/> Take a dance or gymnastics class    |

Come up with a game plan for getting your at least one hour of physical activity every day. Write down some activities you like to do (consult the list above if you can't come up with anything!); decide how many minutes you'll spend on each

NAME OF ACTIVITY	# OF MINUTES

**Get up! Get out! Get at least an hour of physical activity.  
Make sure it's fun!**



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# Fun Activity Ideas to Get Kids Moving

- Go for a Walk
- Family hikes
- Jumping Jacks
- Riding bikes
- Dance
- Marching
- Playing catch, Frisbee, soccer



# Get Moving!

- Relay races
- Scavenger hunt
- Stand on one foot
- Karate kicks and punches
- Squat to the floor and jump up
- Stairs
- Skipping
- Jogging in place

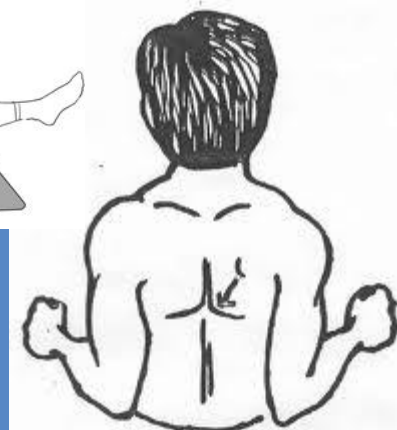


# Don't be a Couch Potato!

## D.A.N.C.E.

**Each commercial break DANCE! Do each 10x then start over until show comes back on**

- Double Kick
- Arm reach
- Non-stop jogging in place
- Cycling on back
- Elbows back



D

A

N

C

E



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# Don't be a Couch Potato!

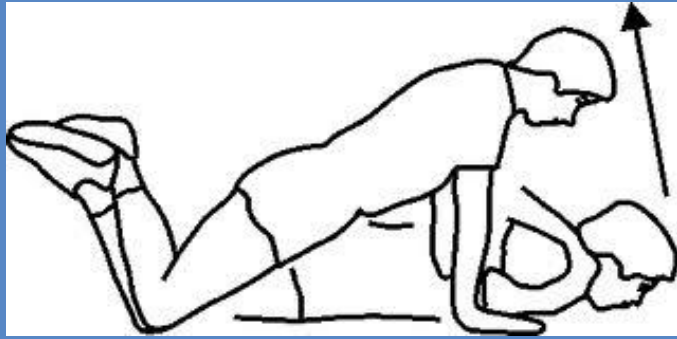
## P.L.A.Y.

**Each commercial break PLAY! Do each 10x then start over until show comes back on**

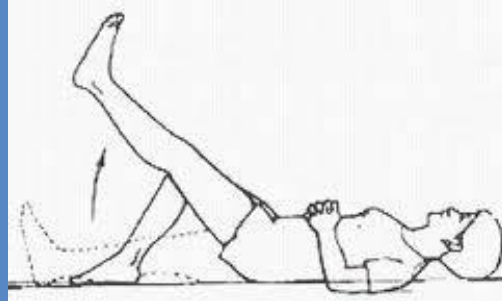
- Push-ups
- Leg lifts
- Ankle raises
- Yoga







P



L



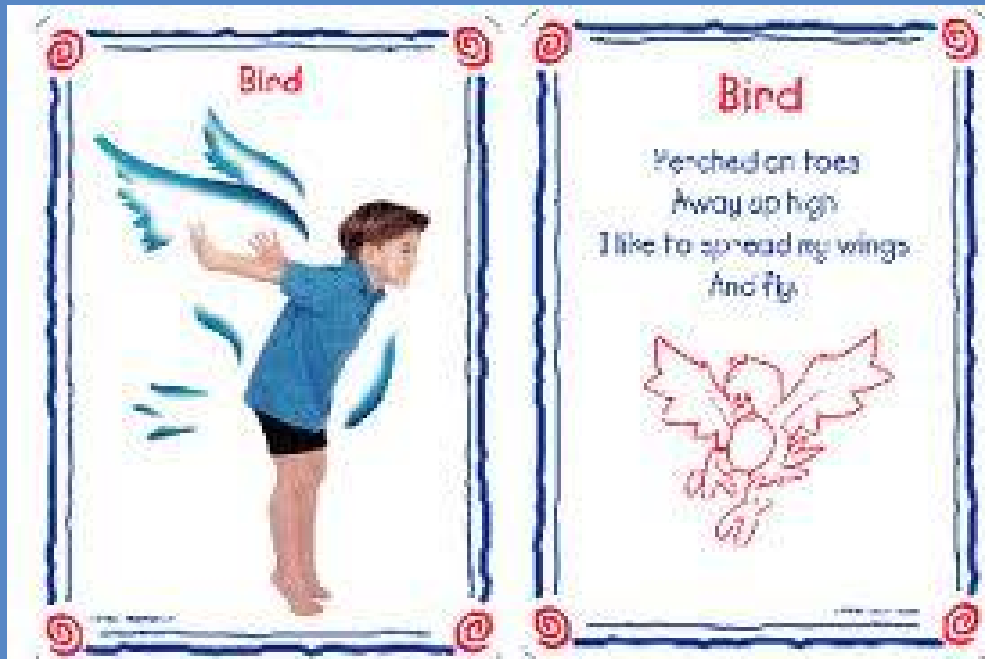
A

Y



# Yoga Poses for Kids

- Yoga Kit for Kids
  - Available at [www.imaginazium.com](http://www.imaginazium.com)



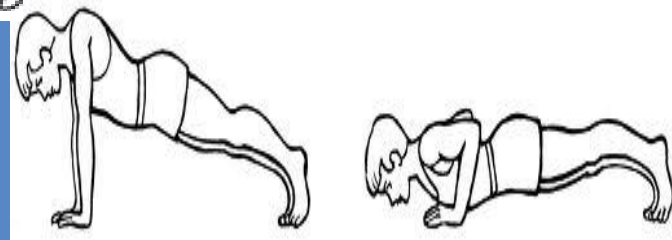
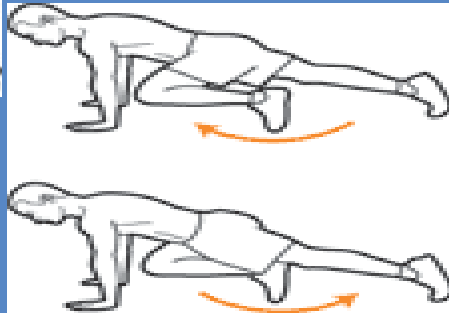
# Don't be a Couch Potato!

## J.U.M.P.

**Each commercial break J.U.M.P! Do each 10x then start over until show comes back on**

- **Jumping Jacks**
- **Up/Down (sit to stand)**
- **Mountain climber**
- **Push ups**





J

U

M

P



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# Tips on Making Activities More Enjoyable

- Family or friend involvement
- Use Music
- Break up exercises throughout the day
- Stay Motivated
  - Add a family activity calendar



# Tips for Counseling and Motivating

## ABC's

- A - Ask Open-Ended Questioning
  - What are some things you would like to change?
- B - Body Language
  - Use eye contact, counsel in private setting
- C - Care and Empathy
  - Acknowledge patient's feelings, use language that is nonjudgmental



# Improving Communication

- Keep a list of good web sites to give to patients
- Magazines, books available in waiting room
- Display educational posters in waiting area, exam rooms
- Patient's set specific behavioral goals and action plans





# Promoting Physical Activity

- Ask about the amount of physical activity they do
- Types of activities they are involved in and enjoy
- What are the barriers to physical activity
- Encourage recommended amount of 60 minutes per day

# Tips for Caregivers

- Be a positive example by leading healthy lifestyle
- Make activity part of family routine
- Provide equipment to encourage activity
- Be positive about activities that child participates in
- Always be safe - provide necessary protective equipment

# When to refer to Community Programs?

- 
- Low home adherence
- Increased motivation for increased activity
- Accessibility to safe environment
- 85>% BMI



# When to refer to Physical Therapy?

- Orthopedic complications
- Balance/coordination issues
- Gait impairments
- Respiratory complications



# National Resources

- 
- Let's Move
  - <http://www.letsmove.gov/>
  - Increase opportunities for kids to be physically active and create opportunities for families to move together





- 5 Fruits and vegetables
- 2 Cut screen time to 2 hours or less a day
- 1 Participate in at least one hour of moderate to vigorous physical activity every day
- 0 Restrict soda and sugar-sweetened sports and fruit drinks

# R<sub>x</sub> for Healthy Active Living

Name \_\_\_\_\_ Date \_\_\_\_\_

## Ideas for Living a Healthy Active Life

- 5** Eat at least 5 fruits and vegetables every day.
- 2** Limit screen time (for example, TV, video games, computer) to 2 hours or less per day.
- 1** Get 1 hour or more of physical activity every day.
- 0** Drink fewer sugar-sweetened drinks. Try water and low-fat milk instead.

## My Goals (*choose one you would like to work on first*)

- |   |  |
|---|--|
| <input type="checkbox"/> Eat _____ fruits and vegetables each day.    | <input type="checkbox"/> Get _____ minutes of physical activity each day.  |
| <input type="checkbox"/> Reduce screen time to _____ minutes per day. | <input type="checkbox"/> Reduce number of sugared drinks to _____ per day. |

\_\_\_\_\_  
Patient or Parent/Guardian signature

\_\_\_\_\_  
Doctor signature

From Your Doctor

American Academy of Pediatrics  
DEDICATED TO THE HEALTH OF ALL CHILDREN™





# Role of Diet

- Encourage healthy eating habits
  - Increase vegetables, fruits, whole grain products
  - Low or non-fat dairy products
  - Serve reasonable sized portions
  - Limit high sugar beverages
  - Encourage drinking water
- Ways to make favorite dishes healthier
- Swap out high calorie snacks

# Community Resources

- Columbia Road Health Services
  - Free weekly fitness program and healthy lifestyle seminars
  - <http://www.crhs.org>
  - 202-328-3717
- YMCA
  - PHD - Physical, Healthy, and Driven
  - Ages 6-14
  - Assessment, Exercise, Nutrition, Family
  - 202-232-6700

# IDEAL Clinic

- For overweight minority and underserved children and adolescents
  - Ages 2 - 18
  - Classified as obese - BMI > 95% AND
  - Elevated fasting cholesterol, triglyceride (TG), insulin, glucose, or hypertension
  - Unable to lose weight after dietary and activity counseling by their primary care doctor, nutritionist, and/or health educator
  - Elevated liver function tests (LFT)
  - Slipped capital femoral epiphysis (SCFE) or Blount's disease

202-476-3948

# Community Resources

- DC Department of Parks and Recreation
  - Fit to Live Project
    - physical fitness, health/nutrition, self esteem, problem solving, conflict resolution, communication, character development & social dynamic
- Boys and Girls Clubs of America
  - Triple Play: A Game Plan for Mind, Body & Soul
    - Ages 6-18
- Northern Virginia Healthy Kids Coalition
  - [www.tippingthescales.net](http://www.tippingthescales.net)

# The Bottom Line

- Every child is different
- Exercises
  - Require formal instruction with emphasis on form
  - Performed slowly
  - Breathing emphasized
  - Address specific impairments

Motivation is KEY

Keep all activities fun and safe!!



# Questions



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