

Multidisciplinary Assessment, **Rehabilitation, and Intervention Services** for Children with Long COVID



Amy Hahn, PhD
Pediatric Psychologist
April 22, 2023

Objectives

| | |
|---------|--|
| Provide | Provide an overview of the current state of pediatric mental health within the context of the COVID-19 pandemic |
| Discuss | Discuss the impact of long COVID symptoms on pediatric mental health and outline a multidisciplinary rehabilitation approach |
| Provide | Provide practical recommendations for pediatric mental health and long COVID symptoms |

Pandemic Impact on Children

Increase in childhood mortality from non-COVID causes (widespread disruption in healthcare)

Increased poverty rates

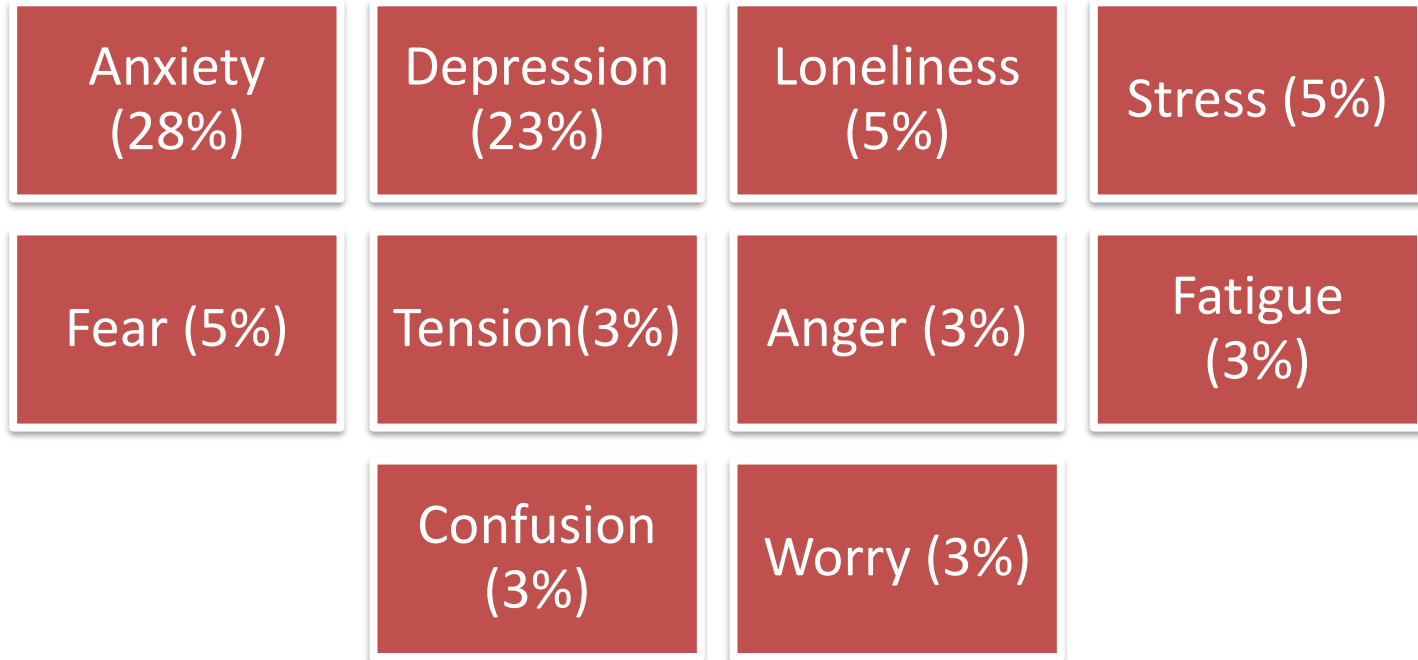
Limited access to remote learning

80 million children under 1 without routine vaccinations

Almost 2 billion children at increased risk of violence, abuse, exploitation due to disruption in protective services

Overall negative impact more significant for marginalized groups

Pandemic and Pediatric Mental Health



Pandemic and Pediatric Mental Health



Declaration of National Emergency in Child and Adolescent Mental Health

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™



CHILDREN'S
HOSPITAL
ASSOCIATION

“We are facing a national mental health crisis that could yield serious health and social consequences for years to come.” (APA, 2020)

AMERICAN ACADEMY OF
CHILD & ADOLESCENT
PSYCHIATRY

W W W . A A C A P . O R G



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.

Did You Know?

KIDS HAS
A MENTAL
ILLNESS
1 IN 5

50% of all lifetime
mental illnesses
start by age 14*

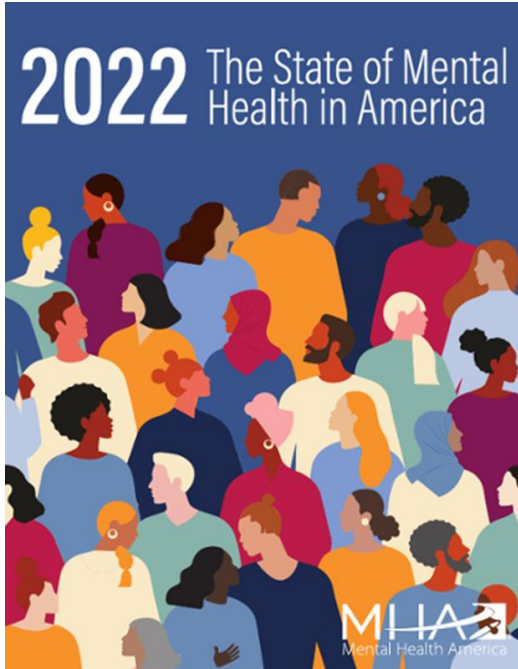
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Suicide is the
SECOND
leading cause of death among
persons aged 15 to 25 years*

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PEDIATRIC MENTAL HEALTH

15% of youth ages 12-17 have experienced at least 1 depressive episode in the last year

60% of youth with major depression do not receive any mental health treatment



AMERICAN
PSYCHOLOGICAL
ASSOCIATION



Mental Illness Does Not Discriminate

The suicide rate for Black children
ages 5 to 11 has nearly
DOUBLED.

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Suicide attempts for Hispanic girls,
grades 9-12, were
40% HIGHER
than for non-Hispanic white girls
in the same age group, in 2017.

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LGBTQ+ youth report experiencing
**HIGHER LEVELS
OF DEPRESSION**
than non-LGBTQ+ youth.

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Children of Asian-American and Pacific Islander (AAPI)
descent are **about as likely to experience mental
health problems** as the general population, but only
HALF AS LIKELY
to seek mental health services.

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LONG COVID IN KIDS

COMMON SYMPTOMS

- Headache
- Fatigue
- Sleep disturbance
- Abdominal pain
- Myalgia
- Congested/runny nose
- Cough
- Chest pain/tightness
- Disturbed smell



Long COVID in Kids – Management

Multiple symptoms impacting several body systems

Many providers can be involved (in isolation or together)

- Specific Long COVID multidisciplinary clinics
- Existing specialty clinics that will see children with Long COVID
- Individual providers who see children with Long COVID

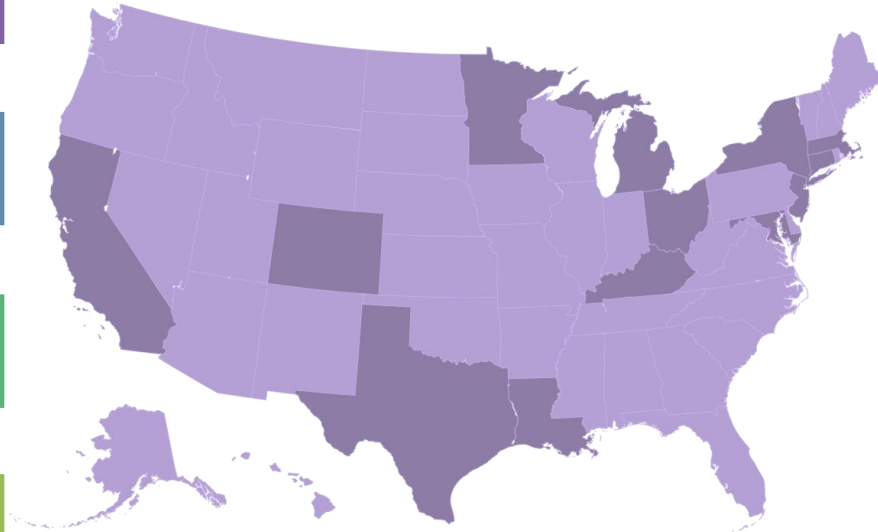
14 Pediatric Long COVID Clinics in US

Multidisciplinary clinics made up of multiple providers in a single location

Specifically aimed at addressing Long COVID

Some have waitlists several months long

Some have found that parents will visit multiple clinics



Connecticut

California

Colorado

Kentucky

Louisiana

Maryland

Massachusetts

Michigan

Minnesota

New Jersey

New York

Ohio

Texas

Washington, DC



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When your child needs a hospital, everything matters.

Specialty Clinics – Examples

Pulmonology

Cardiology

Neurology

Physical Medicine
and
Rehabilitation

Cardiopulmonary
Rehab

Adolescent
Medicine



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.

Long COVID in Kids – Individual Providers

Infectious Disease

Physical Medicine and Rehabilitation

Pulmonology

Cardiology

Neurology



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.

Long COVID Management Key Components

VALIDATION, VALIDATION, VALIDATION

- Acknowledge reality of symptoms
- Acknowledge the range of possible causes

Well-rounded approach to manage multiple symptoms

- Symptom management (e.g., pain, fatigue)
- Activity recommendations (e.g., pacing, breaks, build endurance)
- Coping and adjustment

Cardiopulmonary Rehab Clinic

Multidisciplinary team

- Physical therapy
- Occupational therapy
- Psychology
- Therapeutic Recreation
- Massage
- Nutrition

2-3 visits/week, 6 weeks of treatment

Goals: improve physical function (strength, stamina, shortness of breath), decrease pain, improve quality of life.

Cardiopulmonary Rehab Clinic

COVID Referrals

2021

- 20% referred for COVID
- Referrals from Pulmonary

2022

- 20% for COVID
- Referrals from Pulmonary, Cardiology, and Primary Care

2023 (to date)

- 22% for COVID
- Referrals from Pulmonary

*Referrals to clinic generally include the following diagnoses: asthma, cystic fibrosis, lung transplant, sickle cell disease, heart transplant, and other heart conditions.

Measures

PHQ-9

Peds QL
(parent and child)

Shortness of
Breath
Questionnaire

6 minute walk
(6MWT) and
shuttle walk test

Canadian
Occupational
Performance
Measure

Patient satisfaction
scoring



Case: Alex

15-year-old White male

9th grade

Rural midwestern small town

COVID-19 infection August 2021

History of anxiety

Football player



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.

Case: Alex

Symptoms

Chronic fatigue

Headaches (history of, worsened since COVID)

Dizziness

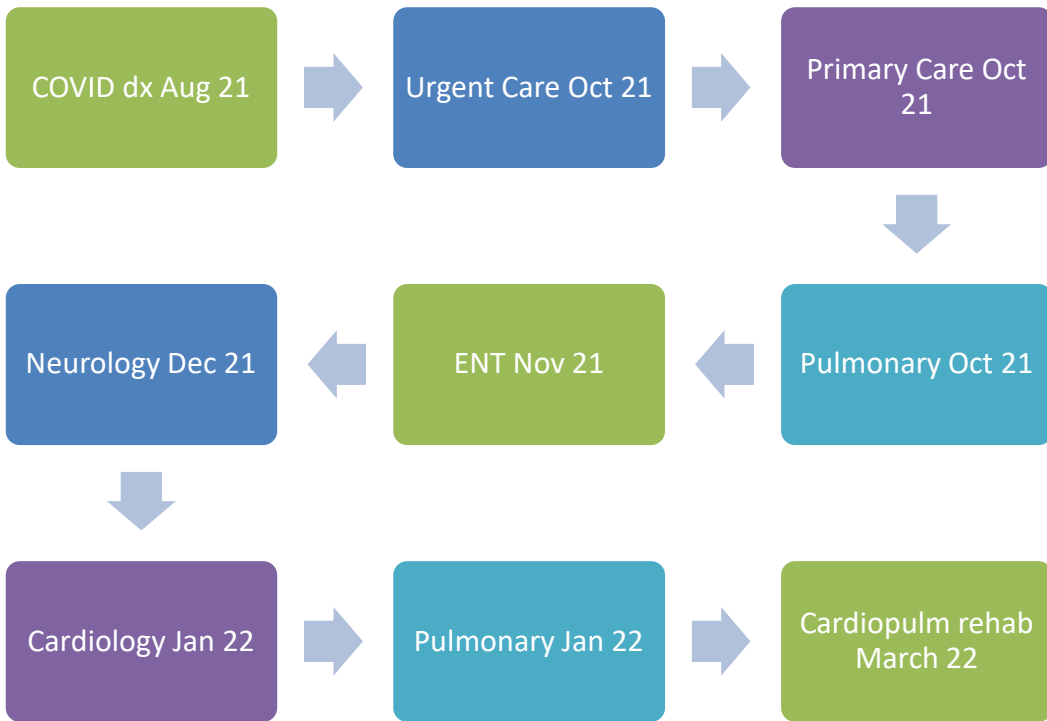
Exercise intolerance

Abdominal pain

Muscle pain/soreness

Difficulty concentrating

Case: Alex



Case: Alex

Psychology interventions

Focus on return to function

Education on stress/stress response

Mind-body connection

Anxiety management

Identification and management of thoughts related to COVID/his health
(CBT/ACT-based approaches)

Sleep hygiene

Case: Alex

Objective outcomes (April 2022)

- Increased endurance, stamina, and physical conditioning (6MWT and shuttle walk test)
- Improved quality of life (self-report PedsQL)
- Reduced need for supplemental oxygen (SOB questionnaire)
- Improved performance of Activities of Daily Living and Strength development (COPM and IADL)

Linked with outpatient Psychology and Psychiatry

Self-reported exercise tolerance, improved energy, no cough, shortness of breath with rest, improved dizziness, improved mood and anxiety (May 2022).

Fewer headaches, obtained driver's license (June 2022).

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Recommendations for pediatric mental health and Long COVID symptoms

Considerations

Consider pre-morbid functioning (e.g., mental health history) in conceptualization and treatment.

Research

JAMA Psychiatry | [Original Investigation](#)

Associations of Depression, Anxiety, Worry, Perceived Stress, and Loneliness Prior to Infection With Risk of Post-COVID-19 Conditions

Siwen Wang, MD; Luwei Quan, BA; Jorge E. Chavarro, ScD; Natalie Slopen, ScD; Laura D. Kubzansky, PhD; Karestan C. Koenen, PhD; Jae Hee Kang, ScD; Marc G. Weisskopf, PhD; Westyn Branch-Elliman, MD; Andrea L. Roberts, PhD

- Mood symptoms 16%
- Fatigue 9%
- Sleep disorders 8%

www.nature.com/scientificreports

scientific reports

 Check for updates

OPEN

Long-COVID in children and adolescents: a systematic review and meta-analyses

Sandra Lopez-Leon^{1,2}, Talia Wegman-Ostrosky³, Norma Cipatli Ayuzo del Valle⁴, Carol Perelman⁵, Rosalinda Sepulveda⁶, Paulina A. Rebolledo^{7,8}, Angelica Cuapio⁹ & Sonia Villapol^{10,11}✉

Considerations

Families may receive mixed recommendations from providers (particularly if unfamiliar with long-COVID)

Focus on return to functioning versus “rest till you feel better”

Families may see many different providers over several months. Early, consistent messaging is key.

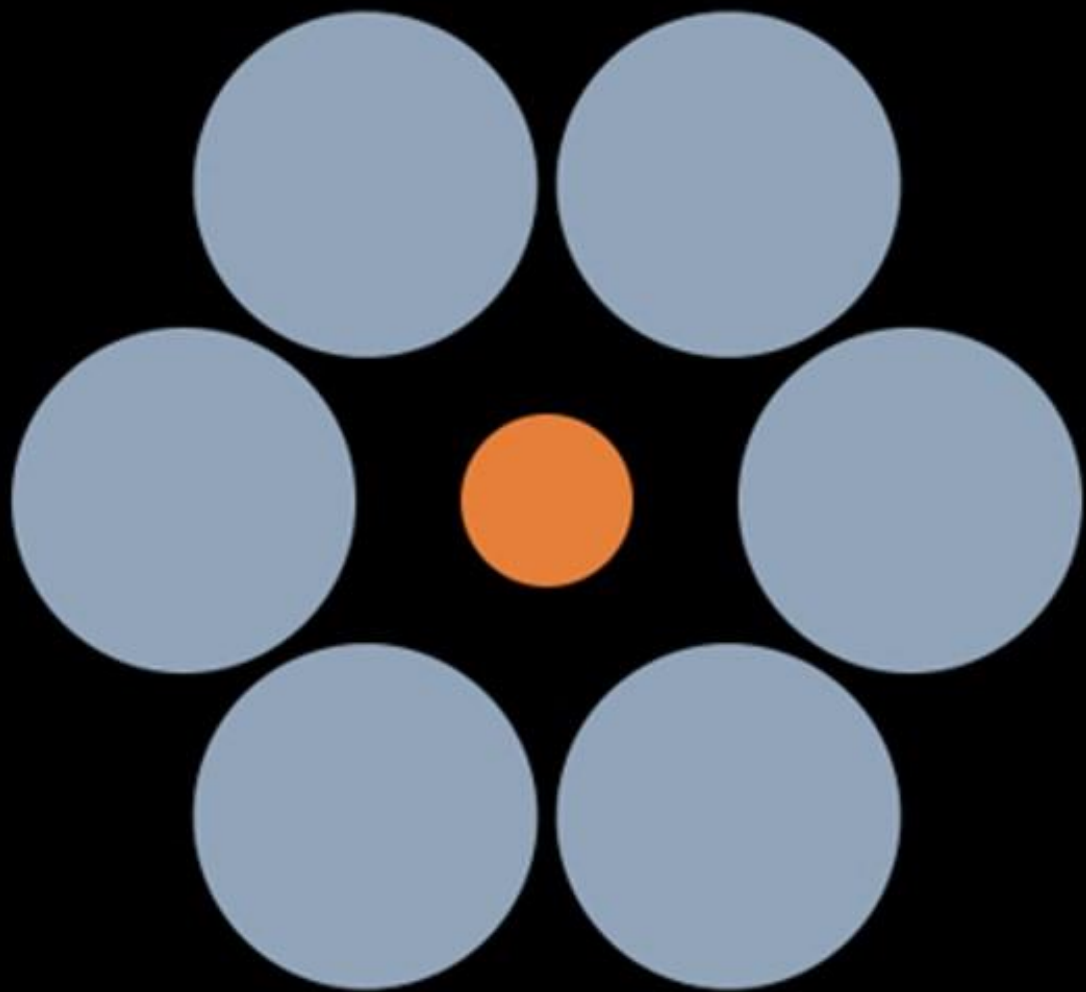
Validation of symptoms is essential, while also encouraging Psychology involvement (when needed). Psychology embedded into clinics can be especially helpful.



BUT WHY
PSYCHOLOGY?

WILL I GET
BETTER?





General Recommendations

Return to school

- Encourage regular attendance
- Consider gradual return (if prolonged absence)
- Consider modified schedule
- Understand there may be “good days and bad days”
- Have a place for breaks when symptoms flare
- Focus on attendance NOT academic success

General Recommendations

Physical symptoms

- Focus on successes (even small) to build confidence
- Do not conduct repeated symptom assessments
- Express understanding, support, and a shared belief that the child will get better
- Physical therapy
- Sometimes medication
- Eat healthy and stay hydrated
- Rescue plan for symptom flares

General Recommendations

Pacing

- Stand up, stretch, move around during the day
- Schedule breaks during the day
 - Modify schedule during the day
 - Stick to breaks to avoid “overdoing” it
- Modify assignments
 - Reduce workload volume
 - Provide oral reports versus written
 - Give copies of notes or use a scribe
 - Extended time
 - Help create a schedule if staying on top of work is hard

General Recommendations

Sleep (which can be disrupted after COVID-19)

- Stop using electronics 30-60 minutes before bed
- Shoot for 8 hours of sleep each night
- Keep a regular schedule
- Avoid naps (if possible)
- Don't stay in bed more than 10 minutes without falling asleep
- Only sleep in bed
- Avoid caffeine after noon
- Exercise regularly
- Have a quiet, dark, cool sleep space
- Try a relaxing bedtime routine

General Recommendations

Emotional health

- Focus on functioning
- Gradual return to activities
- Behavior activation
- Maintain a routine and schedule
- Acknowledge and address worries/thoughts
 - e.g., instead of "I'm never going to feel better", "This won't last forever, I am going to have a good day no matter what".
- Mindfulness-based strategies
- Recognize that pre-existing anxiety and/or mood concerns may be exacerbated by COVID and more formal interventions may be necessary (therapy, medication)

What to look for and general recommendations for pediatric mental health



Support across settings



What to look for



BEHAVIOR
CHANGES



CHANGES IN
MOOD



DIFFICULTY
FOCUSING



DIFFICULTY
SLEEPING



CHANGES IN
APPETITE

Specific Signs & Symptoms

Grades decreasing

Not wanting to participate in activities they used to enjoy

Not spending time with friends or family

Getting in trouble, oppositional behaviors

Conflict with friends or family

Decline in their daily activities (taking care of their hygiene, cleanliness)

Assessment tools

Pediatric Quality of Life Inventory (PedsQL)

PROMIS

Pediatric Symptom Checklist (PSC-17)

Generalized Anxiety Disorder 7-item (GAD-7)

- GAD-2

Patient Health Questionnaire-9 (PHQ-9)*

- PHQ-2





WHAT DO PSYCHOLOGY SESSIONS INCLUDE?

- Information gathering
- Goal setting
- Education about the mind-body connection
- Cognitive behavioral therapy
- Sleep hygiene
- Focus on return to functioning

Referrals

Within your institution

Psychology Today (find a therapist)

Ask PCP/pediatrician for referral

What else can you do?



Encourage Free Medicine



EAT



SLEEP



ACTIVITY

Behavioral Activation

Stress Buster Bingo

Create positivity by completing these small, yet simple things that will reinforce a healthy mindset. Share over a meal or quiet time what you did that day! Decide what small reward or treat you or your children will get when the card is completed, which equals a bingo.

| | | |
|---|--|--|
| Listen to a favorite song. What is it? | Text, call or email someone you miss. Who was that person? | Read a story from a positive news outlet or a book with a positive message. What was the story about? |
| Paint/color/draw. Share it with someone! | FREE SPACE Tell us what you did! | Tell your favorite joke. Share it! |
| Watch a funny video. What was it about? | Exercise for at least 20 minutes. What did you do? | Do something you enjoy! What did you choose? |
| Cook or bake a favorite recipe. What did you make? | Write a letter and leave it in someone's mailbox. What did you have to say to them? | Download a mindfulness app and complete an activity. What activity did you complete? |

Share how you worked on creating positivity by using #OnOurSleeves on your social media.

“Behavioral activation” is a protective factor for depression and stress

- Valued activities
- Fun activities
- Mastery activities

Practice Body Calming Tools



Paced breathing or belly breathing

Progressive muscle relaxation (PMR)

Guided Imagery/Visualization

Mindfulness

Apps

Virtual HopeBox

Smiling Mind

Insight Timer

Headspace

Breathe2Relax

Calm

Breathe, Think, Do with Sesame Street

Free Educational Resources On Our Sleeves

1. 2. 3. Healthy Habits Checklist

Although the schedule is different for everyone, we have created a few checklists to get you started. You can use these as a guide to create checklists for your family to help form new healthy habits for the upcoming school year, not matter what form that takes.

Days learning at home

- Consistent wake up time
- Eat breakfast
- Shower
- Get dressed
- Brush teeth/comb hair
- Sit down at special workspace for school
 - Put electronics away unless using for learning
- Log on to classroom website
- Complete school work in 1-2 subject areas
- Break for free time from 10am to 10:30am
- Complete school work in 1-2 subject areas
- Break for lunch
- Chores
 - List the chores for each day
- Finish school work and put away (Suggest finishing before typical school day would be over)
- Play time
- Consistent bed time

Other things to consider including:








- Practicing a sport or other skill
- Experiential learning - outside, at a park, science experiments
 - <https://www.sciencefun.org/kidsome/experiments/>
 - <https://www.weareteachers.com/easy-science-experiments/>
- Homework time (if applicable)
- Practice or learn musical instrument
- Art time
- Mindfulness exercises - OnOurSleeves.org/get-involved/gratitude

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The Movement to Transform Children's Mental Health



Mental Fitness Challenge

Keeping our brain in shape is just as important as physical fitness. Try doing one of these tips every weekday!

-  3. Send an email/message to someone you love.
-  4. Allow yourself to be present in the moment.
-  5. Plan a family activity night, like game night or movie night.
-  6. This morning, talk about what you are most excited for today.
-  7. Donate to or volunteer at an organization.
-  8. Draw a picture of someone or something you are grateful for.
-  9. Make a list of 3 things you want to do this year.
-  10. Sing a song together.
-  11. Limit screen time today.
-  12. Read a book.
-  14. Smile and say hello to every person you see today.
-  15. Focus on the positive. Try not to complain about anything today.
-  16. Ask your kids to share one thing you like about themselves and why.
-  17. Write down one thing you want to get done this weekend - and do it.
-  18. Do one random act of kindness today.
-  19. Color a picture.
-  20. Go to sleep a half hour earlier.
-  21. Send a text message to someone you miss.
-  22. You decide: How will you be mentally fit today?

For more mental health tips and information, visit OnOurSleeves.org. Share how you're being mentally fit. Use [#OnOurSleeves](https://OnOurSleeves.org) on social media.

Guide to Good Sleep

From infants and toddlers to school-aged kids and teens, it's important to make sure your kids are getting the sleep they need to grow, learn and play.

Of course, we all know that life and nature can interfere with getting plenty of rest and knock us off track - cue the after-school activities, homework, studying, Daylight Saving Time and the COVID-19 pandemic, to name a few.

This combination of all these events can certainly alter our sleep schedules. But it doesn't have to. Check out these tips, tricks and resources for getting the right amount of zzz's, no matter your child's age (and maybe a good refresher for you, too!).



COVID-19 and Sleep: Is Your Child Getting Enough Rest?

Getting a good night's sleep is so important for our mental and physical health. Like so many things recently, COVID-19 has significantly disrupted the sleep of children and adolescents. So what can we do to get back to a healthy sleep routine?



FAQs About Sleep

Bedtime is always a battle. My child refuses to stay in bed. Help! Is sleep training safe for kids? Our experts answer these common questions - and more - around your child and sleep.



Insufficient Sleep Can Be Deadly

One of the main purposes of sleep is that it is restorative for both the brain and the body. Adolescents actually need more sleep than adults but often get less. Even with more than nine hours of sleep a night, many adolescents still feel tired the next day.



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When your child needs a hospital, everything matters.

On Our Sleeves Free Resources



National Institute of Mental Health



First, determine how much your symptoms interfere with your daily life.



Do I have mild symptoms that have lasted for less than 2 weeks?

- Feeling a little down
- Feeling down, but still able to do job, schoolwork, or housework
- Some trouble sleeping
- Feeling down, but still able to take care of yourself or take care of others



If so, here are some self-care activities that can help:

- Exercising (e.g., aerobics, yoga)
- Engaging in social contact (virtual or in person)
- Getting adequate sleep on a regular schedule
- Eating healthy
- Talking to a trusted friend or family member
- Practicing meditation, relaxation, and mindfulness

If the symptoms above do not improve or seem to be worsening despite self-care efforts, talk to your health care provider.



Do I have severe symptoms that have lasted 2 weeks or more?

- Difficulty sleeping
- Appetite changes that result in unwanted weight changes
- Struggling to get out of bed in the morning because of mood
- Difficulty concentrating
- Loss of interest in things you usually find enjoyable
- Unable to perform usual daily functions and responsibilities
- Thoughts of death or self-harm



Seek professional help:

- Psychotherapy (talk therapy)—virtual or in person; individual, group, or family
- Medications
- Brain stimulation therapies

For help finding treatment, visit [nimh.nih.gov/findhelp](https://www.nimh.nih.gov/findhelp).

If you are in crisis, call or text the 988 Suicide & Crisis Lifeline at 988 or chat at 988lifeline.org, or text the Crisis Text Line (text HELP to 741741).

Where to find long-COVID clinics



<https://www.sciencenews.org/article/long-covid-clinics-map-locations-prevalence>



Contact: Amy.Hahn@nationwidechildrens.org