

Orthostatic Intolerance: What You Can Do and Why

By Kay E. Jewell, MD
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Orthostatic Intolerance and You

- In the first presentation, we went over what the body normally does to keep us from falling over every time we stand up.
- In the second presentation, we talked about what happens with orthostatic intolerance.
 - We addressed
 - the changes in how the body reacts,
 - the symptoms that go with the changes and
 - the blood pressure and pulse changes that lead to
 - Fainting (syncope),
 - Postural Orthostatic Tachycardia Syndrome (POTS) and
 - Orthostatic Hypotension (Neurally-Mediated Hypotension – NMH).

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Orthostatic Intolerance: What You Can Do and Why

- In this presentation, we talk about the changes in your body and what you can do that will
 - decrease your symptoms when you stand up (or sit up) and
 - help your body heal – retrain the baroreceptors and the body to act as if standing up is ‘normal’

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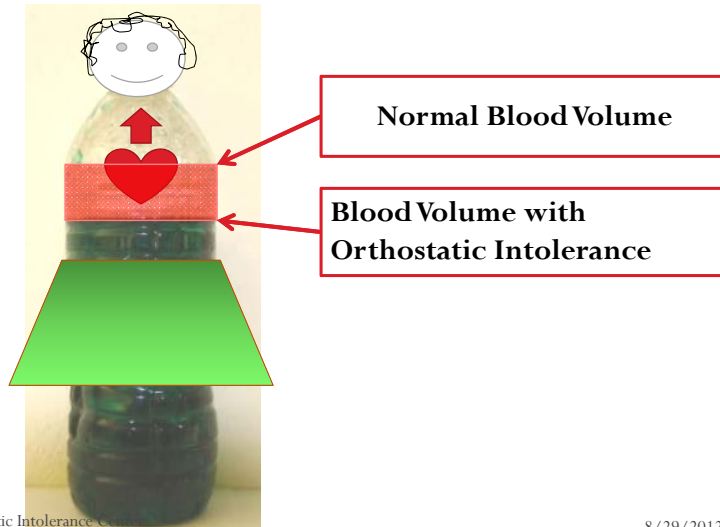
Orthostatic Intolerance: What You Can Do and Why

- We will know you are doing better, that the treatment or management is working when you have fewer symptoms when you stand up.
- Another way to measure how you are doing is how long you can stand without getting symptoms.
 - In one study, they used 30 minutes as the target.
- Being able to stand up longer without getting symptoms.
- When we're working on adding new things to our daily routine, it helps to understand why something is needed – how it is helping.

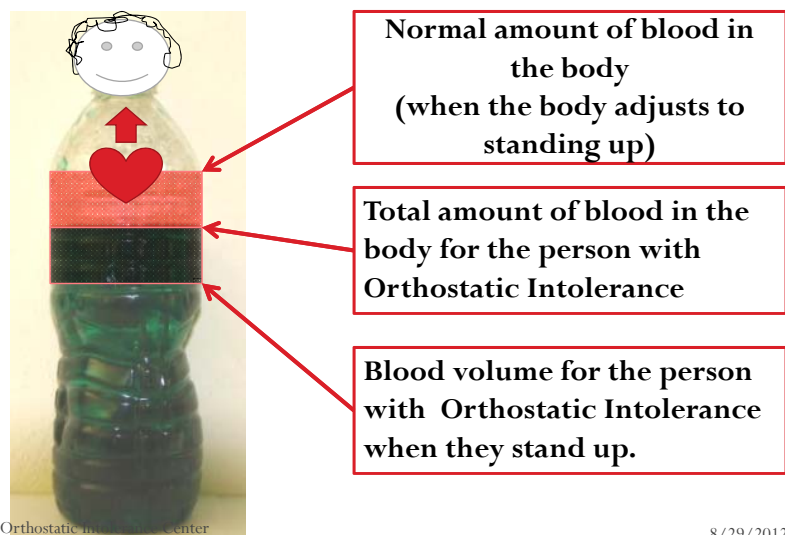
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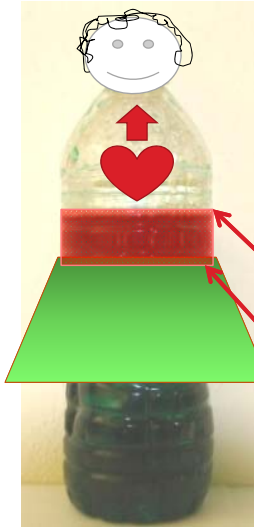
Changes with Orthostatic Intolerance



Changes with Orthostatic Intolerance



Changes with Orthostatic Intolerance



Problem: The amount of blood in the body is lower in a person with orthostatic intolerance.

- It is about 300-400 ml less.
- With standing, the amount of blood to get back to the heart to pump out to the head and body is really too low.

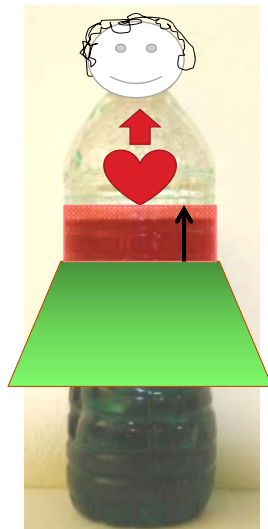
Normal Blood Volume

Blood Volume with Orthostatic Intolerance

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Orthostatic Intolerance – Management



Problem:

Lower volume of blood in the body . (By 300-400 ml)

Goal

To increase the amount of blood in the body, back up to the 'normal' level.

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Orthostatic Intolerance – Management



Problem:

Lower volume of blood in the body . (By 300-400 ml)

Goal

To increase the amount of blood in the body.

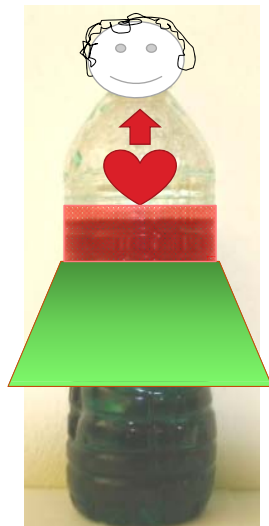
OPTIONS:

1. Increase fluids – 2-3 liters per day
2. Increase salt – 5-10 grams per day
3. IV fluids if needed

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Orthostatic Intolerance – Management



Problem:

Lower volume of blood in the body . (By 300-400 ml)

Goal

To Increase the volume of blood in the body.

OPTIONS:

4. Medications:
 - Fludrocortisone (Florinef)
 - Clonidine
 - Oral Contraceptive Pills (OCP)

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Orthostatic Intolerance – Management



Problem:

Vessels in the legs are not getting smaller (constricting) as they should with standing up.

- This would push the blood back up to the heart.

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Orthostatic Intolerance – Management



Problem: Vessels in the legs are not getting smaller (constricting) as they should with standing up .

Goal

Get the vessels to constrict (get narrower)

- This will cut down the amount of blood that can pool in the legs.
- It pushes more blood back up to the heart for it to pump out to the rest of the body.

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Orthostatic Intolerance – Management



Problem: Vessels in the legs are not getting smaller (constricting)

Goal – Constrict vessels, decrease blood pooling.

OPTIONS

1. Compress vessels in the legs and abdomen with garments.
 - This limits how large they can get and how much blood they can store/hold.
 - The best to do this are full leg compression stockings to the waist – but they can be uncomfortable and people don't wear.
 - Next best – abdominal binder or corset plus knee-high compression stockings
 - Others - sports compression shorts or Spanx garments

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Orthostatic Intolerance – Management



Problem: Vessels in the legs are not getting smaller (constricting) as they should with standing up .

Goal – Constrict vessels and cut down the amount of blood that pool in the legs.

OPTION:

2. Increase muscles in legs
 - When you walk or contract the muscles, it sends blood back up to the heart.
 - Recommendations - start retraining activity with activities for the calves and thighs lying down (or sitting up at most)

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Orthostatic Intolerance – Management



Problem: Vessels in the legs are not getting smaller (constricting) as they should with standing up .

Goal– Constrict vessels and cut down the amount of blood that can pool in the legs.

OPTION:

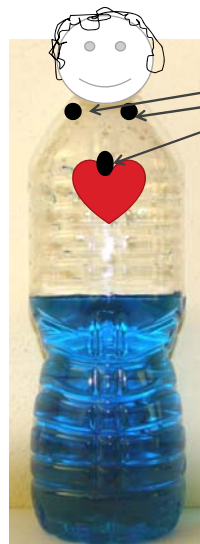
3. Medications:

- Midodrine, Stimulants (Dexadrine, Ritalin, Adderall)
- SSRI/SNRI: Prozac, Zoloft, Lexapro, Effexor, Cymbalta
- Provigil

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Orthostatic Intolerance – Management



Problem:

Baroreceptors have changed how fast they react and how sensitive they are to recognizing & reacting to low blood flow.

- The body adjusts itself so that lying down is now the “new normal”

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Orthostatic Intolerance – Management



Problem: Baroreceptors have changed sensitivity

Goal

Retrain the receptors

- to recognize being upright as normal and
- to not over-react to doing activities while standing up (to not stimulate the heart too much)

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Orthostatic Intolerance – Management



Problem: Baroreceptors Changed Sensitivity – Lying down is the “new normal”

Goal– Retrain the receptors to recognize being upright as normal and to not over-react while standing up

OPTIONS:

1. Raise the head of the bed
 - The final goal is 4 to 6 inches.
 - Start lower, increase about $\frac{1}{2}$ inch a week.

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Orthostatic Intolerance – Management



Problem: Baroreceptors Changed Sensitivity – Lying down is the “new normal”

Goal– Retrain the receptors to recognize being upright as normal and to not over-react while standing up

OPTION

1. Medication:

- Pyridostigmine

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Orthostatic Intolerance – Management



Problem:

Stimulation of the sympathoadrenal system (fight, flight or freeze reaction to danger):

- Too much epinephrine (Epi) = NMH
- Too much norepinephrine (NE)=POTS.

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Orthostatic Intolerance – Management



Problem: Stimulation of the sympathoadrenal system (fight or flight): too much epinephrine (Epi) = NMH, too much norepinephrine (NE)=POTS.

Goal

- Block the effect of Epi and NE;
- Cut down how much is released/stimulated.

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Orthostatic Intolerance – Management



Problem: Stimulation of the sympathoadrenal system (fight, flight or freeze response): too much epinephrine (Epi) = NMH/norepinephrine (NE)=POTS.

Goal– Block the effect of Epi and NE; cut down how much is released/stimulated.

OPTION

1. Medications:

- Beta-blockers: Atenolol, Propranolol
- Disopyramide (Norpace)
- Angiotensin Converting Enzyme Inhibitors (ACEI)

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Orthostatic Intolerance: POTS – Management



Problem: Increase heart rate, too fast

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Orthostatic Intolerance: POTS – Management



Problem: Increase heart rate

Goal
Decrease how fast the heart goes when the person stands up.

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Orthostatic Intolerance: POTS – Management



Problem: Increase heart rate

Goal

Decrease how fast the heart goes when the person stands up..

OPTION

1. Medications:

- Pyridostigmine
- Beta-blockers (example - atenolol)

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- You can contact Dr. Kay Jewell – DrKay@theoicenter.com