

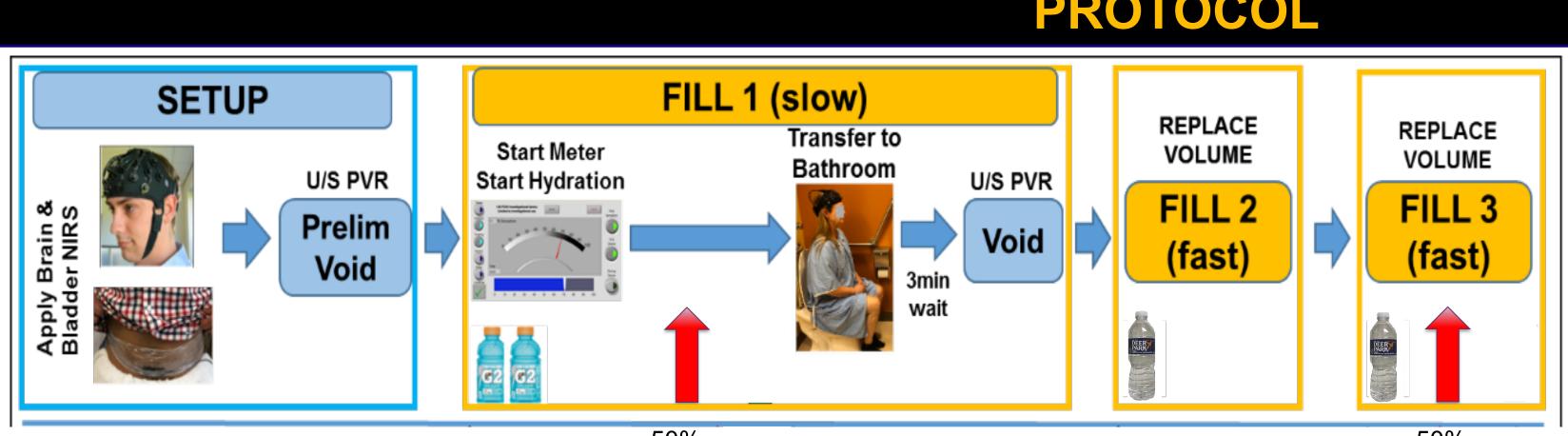
Identifying an overactive bladder phenotype with audio visual intervention in an oral hydration study

INTRODUCTION

- Audio-visual (A/V) stimuli can trigger urinary urgency in some individuals with overactive bladder (OAB)
- There are limited studies investigating the effect of A/V stimuli on the sensation of bladder fullness.
- The purpose of this study was to quantify changes in sensation due to an A/V intervention in individuals with normal and overactive bladders during a non-invasive oral hydration study

METHODS

- Participants were divided into healthy & OAB groups based on ICIq-OAB survey question (5a \leq 1a or \geq 2)
- Participants completed a 6-question survey rating their responses to potential triggers of urgency (A/V running water, stress and cold weather) and expected non-triggers (warm weather, internet surfing and relaxing) on a 0=never to 4=always scale (**Table 1**)
- Trigger survey responses were summed for the 3 questions about expected triggers and for the 3 questions about expected non-triggers (**Table 1**)
- Participants completed a 3-fill hydration protocol (**Fig 1**)
- Participants drank 2L Gatorade G2 during fill 1 and water during fills 2 and 3
- Participants utilized a tablet-based meter to record bladder sensation from 0-100% (**Fig 1**)
- After reaching 50% sensation during fills 1 and 3, participants watched a 3-minute video showing scenes of running water, flushing toilets, waterfalls, etc. (Fig 2)
- The change in %sensation from the beginning to the end of the video was calculated for each group (Table 2).
- Near Infrared Spectroscopy (**NIRS**) of the bladder and brain and effects of distractors were analyzed as separate studies



50% Fig 1. Three-fill hydration protocol with collection of real time sensation data with a Sensation Meter. Trigger video played at 50% sensation (red arrow) and distractor applied at 75% sensation (green arrow) in fills 1 and 3.

Table 1. Trigger Survey Results Sight or Sound of Running Water				Table 2. Change in Sensation during Trigger Video				Table 3. Correlation of Experimental Trigger and Survey Results					
_		•											
Response	Healthy	OAB	p value		Fill 1 (slow	er fill)		Sight o	or Sound of	Running W	ater		
≥2	0	10	0.0001	Change in					Change in % Sensation in Fill 3				
<2	12	1		%Sensation	Healthy	OAB	p value	Survey	> 0 0 0 /	(0.00)			
				≥30%	0	2	0.1883	Response	≥30%	<30%	p value		
Expected	Triggers (wa	ter, cold,	stress)	<30%	14	9		≥2	4	6	0.0237		
Sum of 3	Healthy	OAB	n value					<2	0	13			
Responses	пеанну	UAD	p value		Fill 3 (faste	er fill)							
≥5	0	7	0.0013	Change in		OAB	p value	Expected Triggers (water, cold, stress)					
<5	12	4		%Sensation	Healthy			•	Change in		,		
				≥30%	0	4	0.0261	Sum of 3	•	,,			
Expected Non-Triggers (internet, warm, relaxing)				<30%	14	7	0.0201	Responses	≥30%	<30%	p value		
Sum of 3				-0070	17	<u> </u>		≥5	3	4	0.0672		
Responses	Healthy	OAB	p value		olowor th	on Fill 2	2(10.4)		1		0.0072		
≥5	0	0	1.0	• Fill 1 was slower than Fill 3 (10.4 vs				<5	I	15			
<5	12	11		17.3 ml/n	nin in hea	Ithy & 5.	/ VS			•	C C		
14.1ml/min in OAB)								 In Fill 3, a sensation increase of 					
Survey s	cores for e	expected	d triggers	In Fill 3, a sensation increase of				≧30% during the trigger video was significantly associated with greater					
•		•	•••	\geq 30% during the trigger video was									
•	nificantly a				U	00		Ŭ	•		U		
OAB (Fis	sher's exa	ct test)		significantly associated with OAB survey scores for running water						valer			
					-								

	Trigger So or Sound of F	•		Table 2. Change in Sensation during Trigger Video				Table 3. Correlation of Experimental Trigger and Survey Results					
Response	Healthy	OAB	p value	Fill 1 (slower fill)				Sight or Sound of Running Water					
≥2	0	10	0.0001	Change in				Change in % Sensation in Fill 3					
<2	12	1		%Sensation	Healthy	OAB	p value	Survey	-				
				≥30%	0	2	0.1883	Response	≥30%	<30%	p value		
Expected	Triggers (wa	ater, cold,	stress)	<30%	14	9		≥2	4	6	0.0237		
Sum of 3	Healthy	OAB	p value					<2	0	13			
Responses	пеанту				Fill 3 (faste	er fill)							
≥5	0	7	0.0013	Change in				Expected	Triggers (w	ater, cold,	stress)		
<5	12	4		%Sensation Healthy OAB p value					Change in	e in % Sensation in Fill 3			
				≥30%	0	4	0.0261	Sum of 3	≥30%	<30%	n value		
Expected Non-Triggers (internet, warm, relaxing)				<30%	14	7		Responses	230 /0	~30 / ₀	p value		
Sum of 3	Healthy	OAB	p value					≥5	3	4	0.0672		
Responses	-		•	• Fill 1 was	Fill 1 was slower than Fill 3 (10.4 vs				1	15			
≥5	0	0	1.0	17.3 ml/n	nin in heal	lthv & 5.	7 vs						
<5	12	11						• In Fill 3, a sensation increase of					
were sig	cores for nificantly a sher's exa	associat		 14.1ml/min in OAB) In Fill 3, a sensation increase of ≥30% during the trigger video was significantly associated with OAB In Fill 3, a sensation increase of ≥30% during the trigger video was significantly associated with OAB 					h greater				

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Response	Healthy	OAB	p value					Circlet on Council of Dummin or Maton					
≥2	0	10	0.0001		Fill 1 (slow	er fill)		Signt o	Sight or Sound of Running Water				
<2	12	1	0.0001	Change in	Healthy	-	p value	C	Change in % Sensation in Fill 3				
	12			%Sensation	0			Survey	≥30%	<30%	p value		
Expected	Triggers (wa	ter cold	stress)	≥30%	0	2	0.1883	Response	4	0	0.0007		
Expected Triggers (water, cold, stress)				<30%	14	9		≥2	4	6	0.0237		
Sum of 3	Healthy	OAB	p value					<2	0	13			
Responses	-		-		Fill 3 (faste	er fill)							
≥5	0	1	0.0013	Change in	Hoalthy	OAB	p value	Expected	Triggers (w	ater, cold,	stress)		
<5	12	4		%Sensation	Healthy	UAD	p value		Change in	% Sensatio	on in Fill 3		
				≥30%	0	4	0.0261	Sum of 3					
Expected Non-Triggers (internet, warm, relaxing)				<30%	14	7		Responses	≥30%	<30%	p value		
Sum of 3	Healthy	OAB	n valuo					≥5	3	4	0.0672		
Responses	пеанну	UAD	p value	• Fill 1 was	s slower th	nan Fill 🤅	3 (10 4 vs	<5	1	15			
≥5	0	0	1.0				`		. ·				
<5	12	11			nin in hea	J	/ VS	• In Fill 3	a concati	on incroa	soof		
				14.1ml/min in OAB) 14.1ml/min in OAB									
• Survey s	cores for e	expecte	d triggers	In Fill 3, a sensation increase of				\geq 30% during the trigger video was					
	nificantly a	•						significantly associated with greater					
					iring the tr	00		•	•		U		
	sher's exa	ct test)		significantly associated with OAB survey scores for running water						אמוכו			

Urmila Sivagnanalingam, BS¹, Priscilla Koirala, BS¹, Kaitlyn Maddra, BS¹, Rui Li, PhD³, Kyla Egenberger³, Sydney Roberts³, Natalie Swavely, MD², Samuel Weprin, MD², Adam Klausner, MD², John Speich, PhD³

¹Virginia Commonwealth University School of Medicine, ²Virginia Commonwealth University, Department of Surgery, Division of Urology, Richmond, VA, ³Virginia Commonwealth University College of Engineering, Department of Mechanical Nuclear Engineering Richmond, VA

PROTOCOL

50%

RESULTS



Fig 2. 3-minute trigger video with scenes and sounds of waterfalls, flushing toilets, running water, etc.

CONCLUSIONS

- Results suggest that some OAB participants may have heightened sensation due to A/V stimuli compared to healthy individuals
- Responses to the video of running water correlated with trigger survey results
- Results indicate that a non-invasive hydration protocol may help identify an environmentaltrigger-specific OAB phenotype
- Further research is needed to understand the effects of environmental triggers on bladder sensation in OAB

SUPPORT

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