

# CAMPER APPLICATION 2023



Dear Parents & Guardians,

The following packet is the application for Camp Independence at Bradford Woods in Martinsville, IN.

## The dates of camp are Sunday, June 18<sup>th</sup> – Friday, June 23rd.

## Please read the following information carefully.

Bradford Woods provides therapeutic summer camp experiences for children with various disabilities and/or chronic illnesses. Camp Independence is for children ages 8-18 with chronic, non-cancer blood disorders. Children learn how to maintain an active outdoor lifestyle despite their chronic health condition.

- Application will need to be returned by May 12th in order for your child to attend camp.
- <u>A copy of your child's immunization record is required to attend camp.</u>

There are limited spots for campers. Camper spots will be filled in the order applications are received. Applications received after the filling of all camper spots will be added to a waitlist.

## **APPLICATION INSTRUCTIONS**

ALL application materials in this packet are due by May 12th, 2023

TWO options for returning completed applications:

1. Paper application via mail to:

Riley Hospital for Children at IU Health Attn: Riley Hematology- Camp Independence 705 Riley Hospital Drive, RI 4340 Indianapolis, IN 46202

2. Digital applications can be emailed to:

Jenny Kaericher, NP sicklecell@iuhealth.org

 If you have any questions or require additional information, please do not hesitate to call us at Riley Hematology: **317-944-8784.** Bradford Woods: **765-349-5121.**

Financial In	formation	ı & Contribu	itions	
f	from th	he Riley	y Childr	d for by a generous gift en's Foundation, <u>ttend camp for FREE</u> !
camper. We contribution below how n	e know that the sto fund th much and y	t families can his camp. If yo you can bring	rarely afford t ou are able and g that amount	medical camp is high, about \$2,000 per to pay this cost, and we depend on d would like to contribute, please indicate t to check-in. If you have any Team at 317-944-8784.
Date Receive	ed		(	Check Number
Total Amoun				
I can contrib	ute the foll	lowing amour	nt toward my	child's camp expense (please check one):
□ \$25	<b>□</b> \$50	□ \$75	<b>□</b> \$100	□ Other \$
Note: Make	check or m	10ney order p	ayable to Rile	ey Children's Foundation (RCF)

## ALL FORMS MUST BE <u>COMPLETELY</u> FILLED OUT. **PLEASE PRINT CLEARLY. CAMPER INFORMATION**

First Name: Last Name:	Goes	а Ву:
Birth date: / Age: Gender:	Weight:	Height:
Primary Diagnosis:		
Date of Onset: Degree: D	Slight 🛛 Moderate 🖾 Severe	
Secondary Diagnosis:		
Date of Onset: Degree: Degree: Degree:	Slight 🛛 Moderate 🖾 Severe	
Your camper's T-shirt size: ADULT - 🗆 SMALL 🛛 MEDIUM 🛛 L	ARGE 🗆 XL 🗆 XXL 🗆 XXXL	
YOUTH - 🗆 SMALL 🗖 MEDIUM 🗖 L	ARGE	
PARENT/ GUARD	IAN INFORMATIO	N
CAMPER IS HIS/HER OWN GUARDIAN: 🗆 YES 🗖 NO		
Parent/Guardian 1:		
First Name: Last Name:	Email:	
Street Address:		
City:State:	Zip Code:	County:
Main Phone Number: ()	Type: 🛛 Mobile 🗆 Hom	e 🗖 Work
Other Phone Numbe:r ()	Type: 🛛 Mobile 🗆 Hom	e 🗖 Work
When is the best time to reach you?  Morning  Afternoon	□ Evening □ Other	
Relationship to camper:		
Marital Status:		
Parent/Guardian 2:		
First Name: Last Name:	Email:	
Street Address:		
City:State:		
Main Phone Number: ()	Type: 🗆 Mobile 🗆 Hom	e 🗖 Work
Other Phone Number: ()	Type: 🛛 Mobile 🗆 Hom	e 🗖 Work
When is the best time to reach you?  Morning  Afternoon  I	□ Evening □ Other	
Relationship to camper:		
Marital Status:		

## Camp Riley 2023 Application

In case of an emergency, if the parent/guardia	n cannot be reached, please o	contact:
Name:	Phone:	Relationship to Camper:
If yes, this will be my camper's ye	ar attending (ex: 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>tl</sup>	Relationship to Camper: <sup>1</sup> year etc.). my Petitte at 765-349-5118 or at spetitte@iu.edu.
	<b>MPER MEDICAL</b> / camper's parent/guardi	HISTORY an. PLEASE PRINT CLEARLY!
Camper's Biological Sex:		
Diet: □ Typical □ Blended/Pureed □ 0 □ Other	-	
<b>Mobility</b> :  Walks Uses Walker Use Orthotic Braces/Ankle-Foot orthosis	(AFO) 🗖 Cane	
Seizures:   YES  NO Type: Describe any warning signs before seizu		
What steps are taken at home once you	r camper has a seizure?	
Is your camper medicated for seizures?	□ YES □ NO Date	of last seizure:
Allergies: (Check all that apply) <ul> <li>None</li> <li>Pollen</li> <li>Poison I</li> <li>Medications</li> <li>Peanuts</li> <li>Of</li> </ul> If allergic to medications or food, please	ther e list:	
Respiratory: (Check all that apply) □ Tracheotomy □ CPAP □ E If so, describe:		Other

## Camp Riley 2023 Application

Please list any chronic or acute respiratory illnesses or concerns below:

#### Bowel:

How frequent are your camper's bowel movements? 🛛 Daily 🛛 Every Other Day 🖾 Once a Week
□ Twice per Week □ Three Times per Week □ Other
Do your camper's "bathroom habits" change in different environments?
Explain:
Does your camper wear diapers/ briefs/depends?
Explain:

#### Feminine Needs:

Does your camper menstruate?	
Do you have any special treatment for cramps?	
List feminine products used and if assistance is needed:	

#### Camp Activities:

Are there any activities your camper should <b>not</b> participate in?	🗆 YES	🗆 NO
If yes, list:		

#### Swimming:

Can Camper Swim independently? 🗆 YES 🗖 NO	
If NO, please explain assistance needed (water wings, personal flotation device, counselor assistance	tance)

Does you camper experience a pain crisis after swimming? 
YES 
NO

## Special Equipment: (check all that apply)

□ Orthopedic Devices □ Glasses □ Contacts □ Dentures □ Earplugs □ Helmet □ Catheter
□ Ostomy □ Feeding Tube □ Hearing Aid □ Orthodontic Braces □ Dental Appliances
□ Other:

If yes, what type of assistance is needed? Any special instructions

Sleeping	Behavior:
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Typical sleeping habits	□ Has trouble going to sleep	Has nightmares	Wets bed
🗆 Sleep walks 🗖 Runs Av	vay		
□ Special routine			
Usual bedtime	Usual wak	e up time	

Camper Name: \_\_\_\_\_\_ 6

## Hospitalizations:

Please list recent surgeries (within the last 12 months): \_\_\_\_\_

Please list recent hospitalizations (within the last 12 months):

#### **Physical Health History:**

Conditions	YES	NO	If yes, please explain
Back Problems			
Clotting			
Dizziness/Passing Out			
Heart Murmur			
HIV			
Joint Problems			
Mono (within in last 12 months)			
Skin Problems (itching, rash, etc.)			
Bleeding			
Chest Pain			
Head Injury			
High Blood Pressure			
Immunodeficiency			
Lice			
Shunt (indicate side)			
Diabetes			
Asthma			
Visual Impairment			

## **Medications:**

Please indicate the total number of medications your camper is taking, including prescription, over-the-counter

medications, supplements, vitamins, etc.: \_\_\_\_\_

## **Dates of Immunizations:**

Measles, Mumps, Rubella:		Tetanus-dij	phtheria Toxoid:	H. Influe	nza:
Pneumonia:	Last TB Skir	n Test:	Results:		_
DPT Series: 1)	2)	3)	4)	5)	
Polio Series: 1)	2)	3)	Chicken	Pox: 1)	
Hepatitis B: 1)	2)	3)			

## Camp Medication Policy Signature Required

For your child's safety we require a week's supply of all prescribed medications to be present, in the original container, at the time of check-in or camper will not be able to attend.

We are <u>no longer</u> able to pick up missing medications at the pharmacy.

Camper Name	Date
Printed Parent/Guardian Name	Parent/Guardian Signature
S	ΤΟΡ

## CAMPER MENTAL, SOCIAL, AND EMOTIONAL HEALTH

Family Changes and Homes	ickness	Yes	Νο
Has the applicant gone through any significant family changes? (death, divorce, adoption, abuse, etc.)			
If yes, please describe.			
Are you concerned about the app	licant's ability to cope with homesickness? If yes, please explain why.		

## Mental, Emotional, and Social Health History

Attention Deficit Disorder (ADD or AD/HD)	Depression
Obsessive-Compulsive Disorder	Panic, Anxiety Disorder
Eating Disorder	Substance Abuse
Learning or Processing Challenge	Self-harming or Suicidal Ideation
Suspended or Expelled from School	Personality Disorder
Other Mental, Emotional, or Social Health Issue	
** We are aching for this information to hole us hotton so.	na vour company while at comp. Diagon note that indicating these does

We are asking for this information to help us better serve your camper while at camp. Please note that indicating these does

not necessarily preclude your camper from attending camp. \*\*

## Camp Riley 2023 Application

For each mental, emotional, or social health concern indicated on the previous page, please provide details on the treatment of the condition and the effect (if any) it will have on their experience at camp by using the questionnaire on the next page. If no indication is made, please write DOES NOT APPLY in the boxes below.

Concerns	Yes	No
Has the applicant received professional treatment for this issue? Is the applicant currently taking prescription medication for this issue?		
Has the applicant gone through any significant family changes? (death, divorce, adoption, abuse, etc.)		

#### Management Regimen

What are some management techniques that are used to manage this issue?

Indication of Change in
Mental Health Status
List behaviors that would
indicate your child's
emotional state is
fluctuating (i.e. your child is
becoming irritated,
depressed, overwhelmed,

etc.)

Does your camper have emotional out	tbursts?	□ YES	ΠN	0	
What seems to trigger the outburst? _					
During an outburst, what is normally c	done at h	ome to	calm ł	him/her	down?

## **GENERAL INFORMATION**

would recomm	nend working on as a p		s or skills you have been working on, or anagement goal (i.e. independent inappropriate behaviors, etc.)?
	<ul> <li>Uses Sign Langu</li> <li>Uses non-verba</li> </ul>	<b>-</b> 1	ice □PEC Board red; partial or total:
Describe:			
Education:	UWriting skills: At wh	at level? at level? level?	
Does your cam	per attend school: 🗆 Y	ES INO GRADUATED Grad	le Enrolled <i>(if applicable)</i>
			icate months/years with age)
-		/life skills class? Yes No Ot	
Camper Likes: camper to rela	-	es, foods, noises/music, etc. that y	our camper likes, or that help your
Camper Dislike	es: Please list any activ	ities, foods, noises/music, etc. tha	t tend to agitate or upset your camper
		y or friends that have permission wed to pick up your camper. <i>Relation to camper</i>	to pick up your camper up from camp. Cell phone number

## Camp Riley 2023 Application

## **PERSONAL CARE & SKILLS**

Please indicate if your camper can perform the requested skill **independently** and/or if any assistance is needed. If assistance is needed, please explain. **PLEASE PRINT**.

		NEEDS		
PERSONAL CARE	INDEPENDENTLY	ASSISTANCE	EXPLANATION OF ASSISTANCE	N/A
Uses the toilet				
Washes hands and face				
Brushes teeth				
Takes a shower				
Combs/brushes hair				
Dresses self: Underwear/brief				
T-shirt/jacket				
Pants/shorts				
Shoes & socks				
Other				

MOBILITY/FINE & GROSS		NEEDS		
MOTOR SKILLS	INDEPENDENTLY	ASSISTNACE	EXPLANATION OF ASSISTANCE	N/A
Supports self while sitting				
Operates own wheelchair				
Transfers from seat to chair/				
from bed to chair				
Uses crutches/walker				
Can roll over in bed				
Grasps and releases objects				
Other				

MEALTIME NEEDS	INDEPENDENTLY	NEEDS ASSISTANCE	EXPLANATION OF ASSISTANCE	N/A
Can feed self with fork/spoon				
Can feed self with finger food				
Can swallow whole foods				
Can hold cup or glass				
Can use adaptive utensils				
Can identify when full				
Can drink through a straw				
Other feeding instructions				

	Has your camper ever displayed the			
BEHAVIORS:	following? Please check for each		k for each	Explanation
Hitting	Current	🗆 Past	□ Never	
Pinching	Current	🗆 Past	□ Never	
Hair Pulling	Current	🗆 Past	□ Never	
Biting	Current	🗆 Past	□ Never	
Kicking	🗆 Current	🗆 Past	🗆 Never	
Spitting	Current 🗆	🗆 Past	□ Never	
Scratching	🗆 Current	🗆 Past	🗆 Never	
Bullying	Current	🗆 Past	🗆 Never	
Stealing	Current 🗆	🗆 Past	🗆 Never	
Lying	Current	🗆 Past	□ Never	
Swearing	Current	🗆 Past	🗆 Never	
Wandering	🗆 Current	🗆 Past	🗆 Never	
Withdrawal	Current	🗆 Past	🗆 Never	
Impulsivity	🗆 Current	🗆 Past	🗆 Never	
Non-compliance	🗆 Current	🗆 Past	🗆 Never	
Mood swings	🗆 Current	🗆 Past	🗆 Never	
Verbal Threats	🗆 Current	🗆 Past	🗆 Never	
Throwing Objects	Current	🗆 Past	🗆 Never	
Hand Flapping	🗆 Current	🗆 Past	🗆 Never	
Head Banging	🗆 Current	🗆 Past	🗆 Never	
Rocking	🗆 Current	🗆 Past	🗆 Never	
Inflicts self-injury	🗆 Current	🗆 Past	🗆 Never	
Disrobing	Current 🗆	🗆 Past	□ Never	
Anxiety/depression	Current	🗆 Past	□ Never	
Sexual acting out	Current	🗆 Past	□ Never	
Genital stimulation	🛛 Current	🗆 Past	□ Never	
Suicidal ideation	Current	🗆 Past	□ Never	

If there are any additional comments, concerns, medical or behavioral information we need to know about in order to better serve your camper please list here: \_\_\_\_\_

## Camp Riley 2023 Application

## **RECREATION THERAPY CAMPER ASSESSMENT**

Camper:		Camp Name:		
Camp Goal: (Ide	entify o	ne goal the camper would like t	o acco	omplish at camp)
Please circle the descripti	on tha	t best represents the camper ar	nd wri	te in additional comments
Does your camper have sensory s	timula	tion needs? Yes		No
Low Sensory Need		Moderate Sensory Need		High Sensory Need
1 If applicable, list sensory needs:	2	3	4	5
Healthy Leisure Lifestyle (how act	tive is t	he camper in recreation activitie	es and	hobbies)
Low Participation		Moderate Participation		High Participation
	2	3	4	5
List campers activities and hobbies:				
Independence (in home setting)				
Displays Low Independence		Displays Moderate Independence		Displays High Independence
1	2	3	4	5
Areas for improvement:				
Social Skills (outside of camp)				
Avoids Social Interactions		Tolerates Social Settings		Actively Engages in Social Interaction
1	2	3	4	5
Areas for improvement:				
Friendships (outside of camp)				
Has few or no friendships		Has some friendships		Has many friendships
1	2	3	4	5
Areas for improvement:				
Social Acceptance (outside of can	np)			
Doesn't feel accepted by peers		els somewhat accepted by peers		Feels accepted by peers
1	2	3	4	5
Areas for improvement:				
Physical Activity Level (outside of	camp)			
Low Participation		Moderate Participation		High Participation
1	2	3	4	5
Areas for improvement:				
Opportunity to be with other you	ith that	t have the same diagnosis (outs	ide of	camp)
Never		Sometimes		Often
1	2	3	4	5
Areas for improvement:				
Frustration Tolerance				
Low Frustration Tolerance		Moderate Frustration Tolerance		High Frustration Tolerance
1	2	3	4	5
_				
Areas for improvement:				

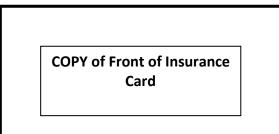
## Camp Riley 2023 Application

## **INSURANCE**

Carrier: \_\_\_\_\_ Policy/Group#: \_\_\_\_\_

Medicare #: \_\_\_\_\_ Medicaid #: \_\_\_\_\_

A copy of your camper's insurance, Medicaid or Medicare card is required. Please supply a copy of BOTH the FRONT and BACK of the card. Please provide a current picture of your camper that mainly shows his/her face.



**COPY of Back of Insurance** Card

**Recent Photograph of Your Camper** 

Please read the following information closely, it will outline all of the following forms, when they need to be submitted, and what they entail.

**Camp Riley Assumption of Risk and Release** – this is the general Camp Riley relase from liability, please read carefully before signing the form. This form should be sent with the application and is to be filled out by the camper, if your camper cannot sign, please sign as their guardian.

**Demographics Form** – this form is used by Bradford Woods and Riley Children's Foundation to offer financial assistance, camperships, and for grant and donor support reports.

**Caring for Your Camper** – this forms give you information on some of the care that our staff will be providing while your camper is at camp and in the cabins. It covers topics such as skin checks, tranfers, hygiene, personal care, and level of assistance. This form should be sent with the application.

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**Camp Riley Physician's Release** – this form it to be completed by a physician and is required in order for your camper to be attend camp. Please make sure that your physician lists any activities that you camper *cannot* participate in and for our campers with Down syndrome, we require a current AAI Exam <u>within the past year</u>. This form can be sent after the application packet. Providers will also be available on site at camp check-in to complete this form.

Adapted Scuba RSTC Medical Form with Physician's Release – \*\* Leadership Campers ONLY \*\* Please fill out the first page and the first part of the second page on your own, and have your physician complete the bottom half. This form can be sent after the application packet. Providers will also be available on site at camp check-in to complete this form.

## Camp Riley Assumption of Risk and Release from Liability ("Agreement")

۱,,	, wish to participate in Camp Riley, offered on behalf of The Board of Trustees of Indiana
University ("IU"), at Bradford Woods on	n("Camp").

#### In consideration for my participation, I agree to the following:

- 1. I understand that Camp activities may include, but are not limited to, the following potential hazardous activities: spending extended periods of time outdoors being exposed to the elements (sun, wind, rain), consumption of food and beverage, horseback riding, canoeing, waterskiing, SCUBA diving, swimming, archery, basketball, arts and crafts, music, high and low ropes courses, a variety of experiential-based initiatives, and transportation to and from activity sites and all other activities.
- 2. I understand that as part of my participation in Camp there are dangers, hazards, and inherent risks to which I may be exposed, including, but not limited to, the risk of serious physical injury, temporary or permanent disability, and death, as well as economic and property loss. I further understand that participating in Camp may involve other risks and dangers, whether known or unknown nor reasonably foreseeable, including the following: adverse weather conditions, food and drink allergies, drowning, sprains, cuts, bruises, broken bones, transportation accidents, injury due to contact with animals, plants, and/or insects, temporary or permanent disability, and/or death.
- 3. I understand that my participation in this Camp is entirely voluntary and at my own risk. I fully understand the scope of the activities and the potential risks involved in attending Camp. I voluntarily accept and assume all risks of injury, loss of life, or damage to property arising out of my participation in Camp.
- 4. I hereby fully release and discharge IU, including its officers, employees, and agents, from any and all claims or causes of action, including all claims for any liability, injury, loss or damage which may result from my participation in the Camp, that may be brought by me or any other person or for any injury or loss that I may suffer while participating in the Event, whether caused by negligence or otherwise, to the fullest extent permitted by law.
- 5. I hereby fully release and discharge the James Whitcomb Riley Memorial Association, Inc., an Indiana nonprofit corporation doing business as Riley Children's Foundation ("Foundation") including its officers, directors, members, agents, employees volunteers and assigns, and any of its parents, related and/or subsidiary organizations, partnerships, companies and entities ("Foundation Persons"), from any and all claims or causes of action, including all claims for any liability, injury, loss or damage which may result from my participation in the Camp, that may be brought by me or any other person for any injury or loss that I or any other person may suffer while participating in the Event, whether resulting from negligence on the part of any of the Foundation Persons or otherwise, except due to the intentional misconduct of a Foundation Person acting within such person's capacity and authority.
- 6. I further release, indemnify, and hold harmless IU, including its officers, employees, and agents, from and against any and all liability, actions, debts, claims, and demands of every kind whatsoever, including, but not limited to, any claim for negligence and/or any present or future claim, loss, or liability for which I may be liable to any other person or to IU that arises out of my participation in Camp.
- 7. In the event of an accident or serious illness, I hereby authorize IU or Indiana University Health, Inc. to arrange transport to an emergency medical care facility. I waive my right to receive informed consent prior to such transportation or treatment. I hereby hold harmless and agree to indemnify Trustees of Indiana University and Riley Children's Foundation from any claims, causes of action, damages and/or liabilities, arising out of or resulting from the medical treatment or transport. I hereby hold harmless and agree to indemnify Indiana University Health, Inc. and Indiana University Health Physicians from any claims, causes of action, damages and/or liabilities, arising out of or resulting from the medical treatment or transport provided by someone other than Indiana University Health, Inc. or Indiana University Health Physicians, respectively. I further agree to accept full responsibility for any and all expenses, including medical expenses that may derive from any injuries that may occur during my participation in Camp.
- 8. This Agreement shall be governed by and construed under the laws of Indiana. Notwithstanding any other agreement that I have signed related to this Camp that purports to establish the venue for any litigation arising from this Camp, I agree that I will file no action against The Trustees of Indiana University or its officers, employees, and agents, whether based on this Agreement or in any way otherwise connected to this Camp, in any court other than the Circuit Court of Marion County, Indiana.

## Camp Riley 2023 Application

- 9. IU has collaborated with medical experts and public health professionals to develop protocols and enhanced health and safety measures designed to minimize the risk of COVID-19 infections. IU also requires that all Bradford Woods staff and campers are vaccinated against COVID-19 unless they have an approved exemption and that individuals wear masks when necessary. However, IU cannot guarantee that all campers or staff members are fully vaccinated. Despite IU's efforts to minimize the risks, it is impossible to eliminate the possibility that a camper could be exposed to or contract COVID-19 while participating in activities at Bradford Woods.
- 10. I have read this entire Agreement, I fully understand it, and I agree to be bound by it. I understand that I am giving up substantial rights (including my right to sue) and acknowledge that I am willingly signing this document. My signature on this document is intended to bind not only myself, but also the successors, heirs, representatives, administrators, and assigns of myself. I represent and certify that my true age is at least 18 years old or, if I am under 18 years old on this date, my parent or legal guardian has also signed the Agreement.

Participant Name (Print)
Participant Signature
Date
If Participant is under 18 years old, his/her parent or guardian must sign below.
Printed Name:
Parent/Guardian Signature:
Date

#### **Photo Release**

I authorize The Trustees of Indiana University, acting through its agents, employees, or representatives, to take photographs, video recordings, and/or audio recordings of me, including my name, image, likeness, performance, and/or voice ("Recordings"). I also grant IU an unlimited right to reproduce, use, exhibit, display, perform, broadcast, create derivative works from, and distribute the Recordings in any manner or media now existing or hereafter developed, in perpetuity, throughout the world. I agree that the Recordings may be used by IU, including its assigns and transferees, for any purpose, including but not limited to, marketing, advertising, publicity, or other promotional purposes. I agree that IU will have final editorial authority over the use of the Recordings, and I waive any right to inspect or approve of any future use of the Recordings. I acknowledge that I am not expecting to receive compensation for participating in the Recordings or for any future use of the Recordings. I release and fully discharge IU, and its employees, agents, and representatives, from any claim, damages, or liability arising from or related to my participation in the Recordings or IU's future use of the Recordings.

□ I consent	□ I do not consent		
Participant	Signature	Date	

#### **Medical Information Release**

I hereby give permission for my medical information and Camp application to be shared with Indiana University Health, Inc., Agape Therapeutic Riding Resources, Inc., and Indiana University Academic Diving Program employees that work with, for, or at Camp. This may include but is not limited to the entire Camp application, paperwork from past years at Camp, and any other medication information that has been provided.

Participant Signature\_\_\_\_\_

\_\_\_\_\_ Date\_\_\_\_\_

Camper Name:

## **DEMOGRAPHICS**

## **IMPORTANT**

# Please note that this section must be completed in order to allow Riley Children's Foundation to request donor support that makes reduced camper fees possible for all campers.

What is your camper's ethnicity?	
🗖 Caucasian	🗖 African American
Asian/Pacific Islander	Hispanic
Native American	Multicultural
□ Other	
What is your family's annual household inco	ome?
□ \$20,000 and under	□ \$20,001 to \$24,000
□ \$24,001 to \$28,000	□ \$28,001 to \$32,000
□ \$32,001 to \$36,000	□ \$36,001 to \$40,000
□ \$40,001 and up	unknown
How many family members does your hous	ehold support with food, clothing, shelter, etc.?
What state county do you live in?	
Does your child currently attend a Riley Hos	pital clinic?

Has your child ever been a patient at Riley Hospital for Children?



Dear Parents and Caregivers,

Our goal is to provide excellent care to every camper. While your camper's medical needs will be handled by the camp's medical staff (IU Health nurses or physicians for Riley camps), or other nurses and physicians hired by non-Riley camps), Bradford Woods staff members assist in and provide camper care throughout your child's stay. Bradford Woods staff members are trained in personal care; behavior management; and emergency procedures, and aim to provide the least restrictive assistance needed for each individual camper to promote independence and autonomy. Additionally, Bradford Woods staff members (hereafter referred to as "staff members") are trained to respect the privacy of each camper without compromising safety. The following procedures and personal care practices may be relevant to your child while at camp.

#### **Transfers**

Staff members are trained to use the front-to-back, twoperson transfer, but will also ask if a camper needs or prefers another style. Staff members are also trained on the side-toside, two-person transfer, and a one person "bear hug"/pivot transfer.

#### <u>Hygiene</u>

Campers typically brush their teeth twice daily – once in the morning and once in the evening. Staff members will follow any instructions regarding specific morning or nighttime routines (retainers, face wash, specific lotions, etc.). If a camper would like to shave throughout the week, he or she must either do it independently or bring an electric device to use with assistance as needed.

#### Showering and Bathing

Campers are required to shower/bathe at least twice throughout the week, but most will shower at least every other day. All of our cabins have shower stalls (with accessible shower chairs), but there are bathtubs available in a few of the cabins if needed. For campers who require assistance showering/bathing, cabin staff members will assist to the degree appropriate for each camper.

#### **Toileting**

Bathroom facilities are available in each cabin and at or near all program sites. These facilities are fully accessible and contain matted areas for campers who use depends and/or briefs. If your camper has a specific bathroom or changing schedule, the cabin staff will make note of that schedule and ensure that it is followed. All campers who require toileting assistance will be

## **Caring for Your Camper**

cleaned in a timely manner when the need arises. Additionally, bowel movements and voids will be tracked for medical purposes for campers who require it and/or as directed by the camp's medical staff.

#### Skin Checks

Under the direct supervision of a physician or RN, cabin staff members will conduct skin checks within 24 hours of a camper's arrival, and again during the last two days of camp. These checks are documented and kept with a camper's medical file once he or she leaves camp. Skin checks are conducted to look for skin irritations, insect bites, ticks, sunburn, blisters, pressure sores, and/or any skin breakdown that may need to be addressed. The extent to which staff members conduct the skin check will depend on the physical and intellectual abilities of each camper.

#### Cabin Paperwork

Cabin staff members will document activities of daily living and personal care procedures for each camper as appropriate. Such activities and personal care procedures include: showers, bowel movements, and urination. In addition, staff members will document how well a camper ate throughout the day, if the camper was staying hydrated, and the camper's interactions in the cabin with both peers and staff members. A daily report will be provided to parents at checkout.

#### Level of Assistance

Staff members will provide a level of assistance appropriate to the camper's physical and mental needs. For example, campers with involved physical disabilities may need close to 100% assistance with activities of daily living and care, while others may be 100% independent. The least restrictive environment will be implemented to ensure the highest level of independence possible.

#### Parent/Guardian Acknowledgment and Consent:

I have read, fully understand, and agree that the above personal care practices and/or procedures may be relevant to my child while he/she attends camp, and I consent to all such personal care practices and/or procedures.

Parent/Guardian Name

Parent/Guardian Signature

Date

Camper Name:

## **Physician Release for Camp Riley 2023**

## \*\*\*This form must be filled out and signed by a <u>PHYSICIAN or NP</u> before being able to attend camp\*\*\* Providers will be available on-site at check-in to complete this form if needed.

To my knowledge, there is no reason why this person cannot participate in horseback riding, recreational activities, waterfront activities (swimming/canoeing/water skiing/fishing/boat rides), music therapy, arts and crafts, archery, and high ropes initiatives (rock wall/zip line). However, I understand the Bradford Woods will evaluate the medical information that has been provided in relation to the existing Bradford Woods's precautions and contraindications. I concur with a review of this person's abilities/limitations by a licensed/credentialed health professional (e.g. PT, OT, SLP, Psychologist, etc), in the implementation of an effective equine activity program.

#### Camper may participate in all camp activities excluding:

a <b>rring Toleration:</b> □ YES □ NO For activities at the horse barn suc explain:	ch as horseback riding, can the camper tolerate jarring? If no, please
	MD DO NP PA Other:
Signature:	
Address:	
Phone ()	Date

Camp Riley 2023 Application

# Discover Scuba

Come explore the amazing underwater world in the Bradford Woods swimming pool with a maximum depth of 5 ft.

## **Participation requirements:**

-Minimum age of 12

-PADI Liability release

-RSTC Medical History form – To be completed prior to camp with personal physician and submitted during registration.





Discover Scuba or Medical History Questions? Bob Kessler rkessler@indiana.edu



# ACADEMIC DIVING PROGRAM

INDIANA UNIVERSITY School of Public Health Bloomington



## Non-Agency Disclosure and Acknowledgment Agreement

In European Union and European Free Trade Association countries use alternative form.

#### Please read carefully and fill in all blanks before signing.

I understand and agree that PADI Members ("Members"), including \_\_\_\_\_\_store/resort\_\_\_

and/or any individual PADI Instructors and Divemasters associated with the program in which I am participating, are licensed to use various PADI Trademarks and to conduct PADI training, but are not agents, employees or franchisees of PADI Americas, Inc, or its parent, subsidiary and affiliated corporations ("PADI"). I further understand that Member business activities are independent, and are neither owned nor operated by PADI, and that while PADI establishes the standards for PADI diver training programs, it is not responsible for, nor does it have the right to control, the operation of the Members' business activities and the day-to day conduct of PADI programs and supervision of divers by the Members or their associated staff. I further understand and agree on behalf of myself, my heirs and my estate that in the event of an injury or death during this activity, neither I nor my estate shall seek to hold PADI liable for the actions, inactions or negligence of and/or the instructors and divemasters associated with the activity.

## Liability Release and Assumption of Risk Agreement

In European Union and European Free Trade Association countries use alternative form.

#### Please read carefully and fill in all blanks before signing.

I, \_\_\_\_\_\_ Participant Name\_\_\_\_\_\_, hereby affirm that I am aware that skin and scuba diving have inherent risks which may result in serious injury or death.

I understand that diving with compressed air involves certain inherent risks; including but not limited to decompression sickness, embolism or other hyperbaric/air expansion injury that require treatment in a recompression chamber. I further understand that the open water diving trips which are necessary for training and for certification may be conducted at a site that is remote, either by time or distance or both, from such a recompression chamber. I still choose to proceed with such instructional dives in spite of the possible absence of a recompression chamber in proximity to the dive site.

I understand and agree that neither my instructor(s),

the facility through which I receive my instruction, store/resort

nor PADI Americas, Inc., nor its affiliate and subsidiary corporations, nor any of their respective employees, officers, agents, contractors or assigns (hereinafter referred to as "Released Parties") may be held liable or responsible in any way for any injury, death or other damages to me, my family, estate, heirs or assigns that may occur as a result of my participation in this diving program or as a result of the negligence of any party, including the Released Parties, whether passive or active.

In consideration of being allowed to participate in this course (and optional Adventure Dive), hereinafter referred to as "program," I hereby personally assume all risks of this program, whether foreseen or unforeseen, that may befall me while I am a participant in this program including, but not limited to, the academics, confined water and/or open water activities.

I further release, exempt and hold harmless said program and Released Parties from any claim or lawsuit by me, my family, estate, heirs or assigns, arising out of my enrollment and participation in this program including both claims arising during the program or after I receive my certification. I also understand that skin diving and scuba diving are physically strenuous activities and that I will be exerting myself during this program, and that if I am injured as a result of heart attack, panic, hyperventilation, drowning or any other cause, that I expressly assume the risk of said injuries and that I will not hold the Released Parties responsible for the same.

I further state that I am of lawful age and legally competent to sign this liability release, or that I have acquired the written consent of my parent or guardian. I understand the terms herein are contractual and not a mere recital, and that I have signed this Agreement of my own free act and with the knowledge that I hereby agree to waive my legal rights. I further agree that if any provision of this Agreement is found to be unenforceable or invalid, that provision shall be severed from this Agreement. The remainder of this Agreement will then be construed as though the unenforceable provision had never been contained herein.

I understand and agree that I am not only giving up my right to sue the Released Parties but also any rights my heirs, assigns, or beneficiaries may have to sue the Released Parties resulting from my death. I further represent I have the authority to do so and that my heirs, assigns, or beneficiaries will be estopped from claiming otherwise because of my representations to the Released Parties.

Participant Name

BY THIS INSTRUMENT AGREE TO EXEMPT AND RELEASE MY INSTRUCTORS, \_\_\_\_\_,

THE FACILITY THROUGH WHICH I RECEIVE MY INSTRUCTION, , AND

PADI AMERICAS, INC., AND ALL RELATED ENTITIES AS DEFINED ABOVE, FROM ALL LIABILITY OR RESPONSIBILITY WHATSOEVER FOR PERSONAL INJURY, PROPERTY DAMAGE OR WRONGFUL DEATH HOWEVER CAUSED, INCLUDING, BUT NOT LIMITED TO, THE NEGLI-GENCE OF THE RELEASED PARTIES, WHETHER PASSIVE OR ACTIVE.

#### I HAVE FULLY INFORMED MYSELF AND MY HEIRS OF THE CONTENTS OF THIS NON-AGENCY DISCLOSURE AND ACKNOWLDGE-MENT AGREEMENT AND LIABILITY RELEASE AND ASSUMPTION OF RISK AGREEMENT BY READING BOTH BEFORE SIGNING BELOW ON BEHALF OF MYSELF AND MY HEIRS.

Participant's Signature

Date (Day / Month / Year)

Date (Day / Month / Year)

## ASSUMPTION OF RISK AND RELEASE FROM LIABILITY

This Assumption of Risk and Release from Liability ("Agreement") pertains to an opportunity			
offered by Indiana University,	[School/Dept.],		
on behalf of the Trustees of Indiana University ("IU"), to participate in activities	being offered		
during [class or event], to be held at	;		
[location] from [start da	ite] to		
[end date].	-		

I, \_\_\_\_\_ [participant name], wish to participate in **Cbcf\_Y]b**[ and/cf Scuba Diving Activities, in consideration of the services to be rendered in organizing the **Cbcf\_Y]b**[ and/cf Scuba Diving Activities and in consideration of my participation in the **Cbcf\_Y]b**[ and/cf Scuba Diving Activities, I hereby agree to the following:

- 1. I understand activities for Snorkeling and Scuba Diving may include, but are not limited to, the following: intense or extreme physical activity; physical exertion such as lifting or moving heavy objects; consumption of food and/or beverage; and the following additional activities: skin and scuba diving; using snorkling and/or scuba diving gear as a tool for scientific study; diving with compressed air; and confined and/or open water activities, some of which may require trips, which are necessary for training and for certification, to a site that is remote, either by time or distance or both, from a recompression chamber.
- 2. I understand that certain risks are inherent in participation of Snorkeling and/or Scuba Diving Activities. These risks may include, but are not limited to, such things as incidents related to the above mentioned activities, including sprains, broken bones, cuts, bruises, entrapment, temporary or permanent disability, and/or death; adverse weather conditions; exposure to theft and other criminal activity; allergic reactions to food and drink items; other physical, mental, and emotional injury; other risks and dangers, whether known or unknown nor reasonably foreseeable; and the following additional risks: drowning; decompression sickness; embolism or other hyperbaric/air expansion injury that require treatment in a recompression chamber or otherwise; heart attack; panic attack; hyperventilation; and injury or death related to improper use of equipment or equipment failure.
- 3. I understand that any owners, employees, officers or agents of any attraction, enterprise or vendor of which I take part or participate during the Snorkeling and/or Scuba Diving Activities, including Professional Association of Dive Instructors, the other participants of the Event (whether associated with my group or not), and other third parties (collectively, "Third Parties"), are not the agents or employees of IU and that dangers may be caused by the negligent or intentional act(s) or omissions of such Third Parties. I understand that IU is not responsible for any injuries or property damage that may be caused by the acts or omissions of such Third Parties.
- 4. I understand that my participation in Snorkeling and/or Scuba Diving Activities is entirely voluntary and at my own risk. I fully understand the scope of the activities and the potential risks involved in Snorkeling and Scuba Diving Activities. I agree to assume the risks of my participation in the Snorkeling and/or Scuba Diving Activities, including the risk of catastrophic injury or death.
- 5. I understand and agree that IU does not provide insurance to cover medical expenses for injuries that may be sustained by me or for damage to my personal property, and that IU strongly recommends that I carry my own health, medical, and property insurance for purposes of potential losses related to Snorkeling and/or Scuba Diving Activities.

- 6. I fully understand that all IU policies and regulations, including those embodied in the Code of Student Rights, Responsibilities and Conduct, are in effect and apply to my behavior for the entire duration of Snorkeling and/or Scuba Diving Activities. I understand that any violations of these policies and regulations may result in sanctions up to and including, in appropriate circumstances, referral to the Indiana University Police Department and/or the Office of Student Ethics for disciplinary action.
- 7. I hereby release and fully discharge The Trustees of Indiana University, including its officers, agents, and employees, from any and all claims or causes of action that may be brought by me, including all liability for damage to personal property, personal injury or loss which may result from my participation in Snorkeling and/or Scuba Diving Activities, whether caused by negligence or otherwise, to the fullest extent permitted by law.
- 8. This Agreement shall be governed by and construed under the laws of Indiana. Notwithstanding any other agreement that I have signed related to Snorkeling and/or Scuba Diving Activities that purports to establish the venue for any litigation arising from Scientific, Recreational, and/or Training of Snorkeling and/or Scuba Diving Activities, I agree that I will file no action against IU or its officers, employees, and agents, whether based on this Agreement or in any way otherwise connected to Snorkeling and/or Scuba Diving Activities, in any court other than the Circuit Court of Monroe County, Indiana.
- 9. I have read this entire Agreement, I fully understand it, and I agree to be bound by it. I represent and certify that my true age is at least 18 years old or, if I am under 18 years old on this date, my parent or legal guardian has also signed the Agreement.

Participant Name (Print)\_\_\_\_\_

Participant Signature\_\_\_\_\_

Date\_\_\_\_\_

If Participant is under 18 years old, his/her parent or guardian must sign below.

Printed Name:\_\_\_\_\_

Parent/Guardian Signature:\_\_\_\_\_

Date\_\_\_\_\_











## Diver Medical | Participant Questionnaire

Recreational scuba diving and freediving requires good physical and mental health. There are a few medical conditions which can be hazardous while diving, listed below. Those who have, or are predisposed to, any of these conditions, should be evaluated by a physician. This Diver Medical Participant Questionnaire provides a basis to determine if you should seek out that evaluation. If you have any concerns about your diving fitness not represented on this form, consult with your physician before diving. If you are feeling ill, avoid diving. If you think you may have a contagious disease, protect yourself and others by not participating in dive training and/ or dive activities. References to "diving" on this form encompass both recreational scuba diving and freediving. This form is principally designed as an initial medical screen for new divers, but is also appropriate for divers taking continuing education. For your safety, and that of others who may dive with you, answer all questions honestly.

## Directions

#### Complete this questionnaire as a prerequisite to a recreational scuba diving or freediving course.

**Note to women:** If you are pregnant, or attempting to become pregnant, *do not dive*.

1	I have had problems with my lungs/breathing, heart, blood, or have been diagnosed with COVID-19.	Yes □ Go to	No 🗆
·		box A	
		Yes 🗆	
2	I am over 45 years of age.	Go to box <b>B</b>	No 🗆
3	3 I struggle to perform moderate exercise (for example, walk 1.6 kilometer/one mile in 14 minutes or swim 200 meters/yards without resting), OR I have been unable to participate in a normal physical activity due to fitness or health reasons within the past 12 months.		No 🗆
4	I have had problems with my eyes, care or pagel pageages/sigures	Yes □ Go to	No 🗆
4	I have had problems with my eyes, ears, or nasal passages/sinuses.		
5	I have had surgery within the last 12 months, OR I have ongoing problems related to past surgery.		No 🗆
	I have lost consciousness, had migraine headaches, seizures, stroke, significant head injury, or suffer from persistent neurologic	Yes □ Go to	
6	6 injury or disease.		No 🗆
	I am currently undergoing treatment (or have required treatment within the last five years) for psychological problems, personality	Yes 🗆	
7	disorder, panic attacks, or an addiction to drugs or alcohol; or, I have been diagnosed with a learning or developmental disability.		No 🗆
		Yes □ Go to	No 🗆
8	I have had back problems, hernia, ulcers, or diabetes.		
		Yes 🗆 Go to	No 🗆
9	I have had stomach or intestine problems, including recent diarrhea.		
10	I am taking prescription medications (with the exception of birth control or or anti-malarial drugs other than mefloquine (Lariam).	Yes □*	No 🗆

## **Participant Signature**

If you answered NO to all 10 questions above, a medical evaluation is not required. Please read and agree to the participant statement below by signing and dating it.

**Participant Statement:** I have answered all questions honestly, and understand that I accept responsibility for any consequences resulting from any questions I may have answered inaccurately or for my failure to disclose any existing or past health conditions.

Participant Signature (or, if a minor, participant's parent/guardian signature required.

Date (dd/mm/yyyy)

Participant Name (Print)

Birthdate (dd/mm/yyyy)

Instructor Name (Print)

Facility Name (Print)

\* If you answered YES to questions 3, 5 or 10 above OR to any of the questions on page 2, please read and agree to the statement above by signing and dating it AND take all three pages of this form (Participant Questionnaire and the Physician's Evaluation Form) to your physician for a medical evaluation. Participation in a diving course requires your physician's approval.

Date (dd/mm/yyyy)

## Diver Medical | Participant Questionnaire Continued

(Print)

BOX A – I HAVE/HAVE HAD:		
Chest surgery, heart surgery, heart valve surgery, an implantable medical device (eg, stent, pacemaker, neurostimulator) or a pneumothorax (collapsed lung).	Yes □*	No 🗆
Asthma, wheezing, severe allergies, hay fever or congested airways within the last 12 months that limits my physical activity/exercise.	Yes□∗	No 🗆
A problem or illness involving my heart such as: angina, chest pain on exertion, heart failure, immersion pulmonary edema, heart attack or stroke, OR am taking medication for any heart condition.	Yes □*	No 🗆
Recurrent bronchitis and currently coughing within the past 12 months, OR have been diagnosed with emphysema.	Yes □*	No 🗆
A diagnosis of COVID-19.	Yes □*	No 🗆
BOX B – I AM OVER 45 YEARS OF AGE AND:		
I currently smoke or inhale nicotine by other means.	Yes □*	No 🗆
I have a high cholesterol level.	Yes □*	No 🗆
I have high blood pressure.	Yes □*	No 🗆
I have had a close blood relative die suddenly or of cardiac disease or stroke before the age of 50, OR have a family history of heart disease before age 50 (including abnormal heart rhythms, coronary artery disease or cardiomyopathy).	Yes □*	No 🗆
BOX C – I HAVE/HAVE HAD:		
Sinus surgery within the last 6 months.	Yes □*	No 🗆
Ear disease or ear surgery, hearing loss, or problems with balance.	Yes□*	No 🗆
Recurrent sinusitis within the past 12 months.	Yes □*	No 🗆
Eye surgery within the past 3 months.	Yes□*	No 🗆
BOX D – I HAVE/HAVE HAD:		
Head injury with loss of consciousness within the past 5 years.	Yes □*	No 🗆
Persistent neurologic injury or disease.	Yes □*	No 🗆
Recurring migraine headaches within the past 12 months, or take medications to prevent them.	Yes □*	No 🗆
Blackouts or fainting (full/partial loss of consciousness) within the last 5 years.	Yes □*	No 🗆
Epilepsy, seizures, or convulsions, OR take medications to prevent them.	Yes □*	No 🗆
BOX E – I HAVE/HAVE HAD:		
Behavioral health, mental or psychological problems requiring medical/psychiatric treatment.	Yes □*	No 🗆
Major depression, suicidal ideation, panic attacks, uncontrolled bipolar disorder requiring medication/psychiatric treatment.	Yes □*	No 🗆
Been diagnosed with a mental health condition or a learning/developmental disorder that requires ongoing care or special accommodation.	Yes □*	No 🗆
An addiction to drugs or alcohol requiring treatment within the last 5 years.	Yes□*	No 🗆
BOX F – I HAVE/HAVE HAD:		
Recurrent back problems in the last 6 months that limit my everyday activity.	Yes□*	No 🗆
Back or spinal surgery within the last 12 months.	Yes □*	No 🗆
Diabetes, either drug or diet controlled, OR gestational diabetes within the last 12 months.	Yes □*	No 🗆
An uncorrected hernia that limits my physical abilities.	Yes □*	No 🗆
Active or untreated ulcers, problem wounds, or ulcer surgery within the last 6 months.	Yes□*	No 🗆
BOX G – I HAVE HAD:		
Ostomy surgery and do not have medical clearance to swim or engage in physical activity.	Yes□*	No 🗆
Dehydration requiring medical intervention within the last 7 days.	Yes □*	No 🗆
Active or untreated stomach or intestinal ulcers or ulcer surgery within the last 6 months.	Yes □*	No 🗆
Frequent heartburn, regurgitation, or gastroesophageal reflux disease (GERD).	Yes□*	No 🗆
Active or uncontrolled ulcerative colitis or Crohn's disease.	Yes□*	No 🗆
Bariatric surgery within the last 12 months.	Yes□*	No 🗆

## Diver Medical | Medical Examiner's Evaluation Form

Participant Name	Birthdate	
	(Print)	Date (dd/mm/yyyy)
	e visit uhms.org for medical guidance on medical cor	o participate in recreational scuba diving or freediving nditions as they relate to diving. Review the areas rele-
Evaluation Re	sult	
Approved – I find no	o conditions that I consider incompatible with recreation	al scuba diving or freediving.
Not approved – I fin	d conditions that I consider incompatible with recreation	onal scuba diving or freediving.
Signature of certifie	d medical doctor or other legally certified medical provider	Date (dd/mm/yyyy)
Medical Examiner's Name		_
	(Print)	
Clinical Degrees/Credenti	als	_
Clinical /Hospital		
Address		
Phone	Email	
	Physician/Clinic Stamp (option	onal)
	Created by the Diver Medical Screen Committee following bodies:	e in association with the
	The Undersea & Hyperbaric Medical Society	
	DAN (US) DAN Europe	
	Hyperbaric Medicine Division, University of C	California, San Diego



## **Diving Medical Guidance to the Physician**

These guidelines are typically used by physicians who have been approached by an individual wishing to take part in recreational scuba diving or freediving. They will usually have completed a <u>WRSTC Diver Medical Participant Questionnaire</u>.

Recreational scuba diving and freediving (hereafter "diving") is performed safely by many people. The risks associated with diving may be increased by certain physical conditions, and the relationship to diving may not be readily appreciated by candidates. Thus, it is important to screen divers for such conditions.

A physical examination for diving focuses on conditions that may put a diver at increased risk for decompression sickness, pulmonary overinflation with subsequent arterial gas embolization, and other conditions such as loss of consciousness, which could lead to drowning. Additionally, divers must be able to withstand some degree of thermal stress, the physiological effects of immersion, and have sufficient physical and mental reserves to deal with normal diving and possible emergencies.

The history, review of systems, and physical examination should include as a minimum the points listed below. The list of conditions that might adversely affect the diver is not exhaustive, but contains the most commonly encountered medical problems. The brief introductions serve as an alert to the nature of the risk posed.

The potential diver and his or her physician must weigh the benefits to be had by diving against an increased risk of injury or death due to the individual's medical condition. As with any recreational activity, there are limited data for diving with which to calculate the mathematical probability of injury. Experience and physiological principles only permit a qualitative assessment of relative risk.

For the purposes of this document, **Severe Risk** implies that an individual is believed to be at substantially elevated risk of injury compared with the general population. The consultants involved in drafting this document would generally discourage a candidate with such medical problems from diving. **Relative Risk** refers to a moderate increase in risk, which in some instances may be acceptable. To make a decision as to whether diving is contraindicated for this category of medical problems, physicians must base their judgment on an assessment of the individual candidate. **Temporary Risk** refers to medical problems which may preclude diving but are temporary in nature, allowing the individual to dive after they have resolved.

Following many of the sections is a short list of references that give more information on the topic. The lists are not exhaustive, but examples that may be of particular relevance.

Diagnostic studies and specialty consultations should be obtained as indicated to determine the candidate's status. A list of references is included to aid in clarifying issues that arise.

The following sections are included in this document (click to jump to	section):
--	-----------

 BEHAVIORAL HEALTH
 CARDIOVASCULAR SYSTEMS
 GASTROINTESTINAL
 HEMATOLOGICAL

 METABOLIC AND ENDOCRINOLOGICAL
 NEUROLOGICAL
 ORTHOPEDIC
 OTOLARYNGOLOGICAL
 PULMONARY

## **BEHAVIORAL HEALTH**

Behavioral health is one of the most difficult aspects of diver candidate evaluation, because many relevant potential problems may not be apparent and are not easily assessed in an office consultation. This is also an aspect of evaluating suitability for diving in which the diving instructor, who observes the candidate in the field, must also play a part.

The diving candidate must be capable of learning and applying a theoretical knowledge base for diving. Significant intellectual handicap is incompatible with independent diving. Medical examiners need to be attuned to both safety and pragmatic considerations associated with learning and developmental disabilities that require special accommodations and/or medication(s). Prospective divers who have been formally diagnosed with a learning or developmental disability may seek medical advice regarding their fitness to dive and can benefit from insight into the potential safety and educational accommodations that may be required. A medical clearance does not constitute a mandate to an instructor to take an individual as a student. Nor does it imply that the prospective diver has undergone a formal learning/developmental disability evaluation, which is outside the scope of these examinations.

The decision to eventually certify an individual as a diver, taking account of a learning/developmental disability and the candidate's capacity to accommodate it in diving is, ultimately, up to the instructor, who will have the opportunity to assess knowledge acquisition and observe the candidate's behavior and performance in the instructional setting.

Motivational and behavioral traits should be considered if there is obvious related history or problems become apparent during training. Candidates who appear unmotivated, irresponsible, or prone to distraction or panic should be discouraged from diving.

A history of psychiatric disease is not in and of itself disqualifying. Psychotropic medications can be problematic if they are associated with altered level of awareness or sedation, or may alter seizure threshold, (e.g., benzodiazepines, narcotics). What is of primary importance is the individual's current psychological state, and anticipated impact of their mental/psychological history relative to their ability to navigate the potential and anticipated challenges and stresses of diving. The level of baseline mental health, with or without medication, is therefore of greater importance than the theoretical effects of a given medication or class of medications while diving.

Candidates with major depression, bipolar disorder, psychoses, or current drug or alcohol abuse should not dive. Even if a candidate is well controlled on medication (see below for discussion of SSRIs), there may be risks associated with the use of potent antidepressant and antipsychotic drugs in the underwater environment. The tendency for potent psychotropic drugs to impair concentration and cause drowsiness is of particular concern, as is their potential to lower the seizure threshold, and the lack of research data evaluating potential interactions with the pressure environment. Candidates with a past history of major psychiatric problems or drug/alcohol abuse who are stable without medication and withdrawn from drugs and alcohol can be considered on a case-by-case basis, preferably by a physician trained in diving medicine.

Perhaps the most challenging group of candidates from a behavioral perspective in the modern context is those with "mild" depression (those who have never been hospitalized for psychiatric treatment or placed on psychiatric hold or attempted self-harm) or those with mood disturbances treated with selective serotonin reuptake inhibitors (SSRIs). The general use of SSRIs has increased dramatically over recent years in many countries. There are no data describing use of SSRIs among divers, but anecdotally the numbers are significant. Concerns over diving while using SSRIs relate to the disorder being treated and to the potential interaction between the drug and diving. There are many candidates taking these drugs whose mild mood disturbance would not of itself constitute a reason to avoid diving. Evaluation of the potential for an interaction between SSRIs and diving is more difficult. There are no published reports of apparent problems despite what is almost certainly a large number of divers using them. Diving while taking an SSRI is probably acceptable provided that: the treated mood disturbance was mild prior

to treatment and has been well controlled by the drug; the drug has been used for at least one month without evidence of relevant side effects; and the candidate is fully counseled about (and accepting of) the relevant risks. If the candidate is considering diving beyond the traditional recreational envelope or using gases other than air, he or she should consult an appropriate diving medicine specialist.

There are also potential risks associated with other drugs used to treat psychiatric conditions, including serotoninnorepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), monoamine oxidase inhibitors (MAOIs), and atypical agents (including bupropion). Candidates on these medications should be evaluated on a case-by-case basis.

## **Severe Risk Conditions**

- Active major depression, bipolar or psychotic disorder
- History of panic attacks
- Drug or alcohol abuse
- Severe intellectual handicap

## **Relative Risk Conditions**

- Questionable motivation to dive solely to please spouse, partner or family member, or to prove oneself in the face of personal fears
- Developmental delay/Cognitive impairment
- Anxiety disorder
- History of drug or alcohol abuse
- History of major depression, bipolar, or psychotic disorder
- Use of psychotropic medications
- Claustrophobia or agoraphobia

## CARDIOVASCULAR SYSTEMS

Diving places increased demands on the heart. Immersion itself results in an increase in cardiac preload, as does peripheral vasoconstriction with an increase in blood pressure. These changes are typically accompanied by sustained mild to moderate exercise. Perhaps not surprisingly, almost 30% of recreational diving fatalities have a cardiac event as the disabling injury. It follows that the primary goals of evaluating the cardiovascular system in a diving candidate are to identify those who appear to be at risk of myocardial ischemic events, myocardial insufficiency, or other cardiac events (such as arrhythmias) that might disable a diver underwater, and to establish that the candidate has an adequate exercise capacity for diving.

With the above in mind, some cardiac diagnoses are considered to render a candidate unsuitable for diving, including: untreated symptomatic coronary artery disease, dilated or obstructive or previous stress cardiomyopathy, congestive heart failure, moderate or worse pulmonary hypertension, long QT syndrome or other arrhythmiainducing channelopathies, paroxysmal arrhythmias causing unconsciousness or impairment of exercise capacity, poor exercise capacity of apparent cardiac origin, moderate to severe valvular lesions, complex congenital cardiac disease, atrial septal defect, and the presence of an implanted cardiac defibrillator.

Potential candidates with any of the following should be investigated to exclude a disqualifying condition:

- Exertional chest pain, dyspnea, palpitations, or syncope
- Unexplained syncope/near syncope
- Heart murmur
- Hypertension
- Family history of premature death (sudden/unexpected or cardiac) before age 50, cardiac disease before age 50, cardiomyopathy, arrhythmia, or channelopathy

It is strongly recommended that these candidates be evaluated in consultation with a physician trained in diving medicine and possibly a cardiologist. Successful treatment of disqualifying cardiac disorders may result in a candidate becoming suitable for diving. For example, a candidate with coronary artery disease (including previous myocardial infarction) who has been successfully revascularized may be suitable for diving if inducible ischemia can be excluded and adequate exercise capacity demonstrated (for example, in an exercise stress test). The capacity to sustain exercise at 6 MET (metabolic equivalent of task; 1 MET approximates resting metabolic rate, assumed to approximate an oxygen consumption of 3.5 mL/kg/min; 6 MET approximates an effort of six times resting metabolic rate, approximating an oxygen consumption of 21 mL/kg/min is a pragmatic expectation for a recreational diver, but there may be an occasional need to exercise transiently at higher levels during diving. Similarly, a candidate with a history of paroxysmal arrhythmia who has undergone successful pathway ablation may

be suitable for diving. Candidates with any of the above diagnoses who wish to consider diving after appropriate treatment are best referred to a physician trained in diving medicine for evaluation.

Asymptomatic candidates over 45 years of age with risk factors for coronary artery disease should undergo evaluation by a physician. Individuals with a predicted 5-10 year risk of a cardiovascular event >10% using a cardiac risk calculator should be investigated for coronary disease unless they provide a credible history of exercise capacity which renders significant coronary disease very unlikely. A coronary calcium score is a suitable initial investigation, and a myocardial perfusion scan, stress echocardiogram, or CT coronary angiogram should be considered in following up a positive calcium score. Consideration of a tailored investigation pathway for the individual diving candidate is ideally undertaken by a cardiologist in consultation with a physician trained in diving medicine. Candidates who prove to have inducible ischemia or obstructive lesions justifying intervention should not dive until completion of the intervention and demonstration of its success. Candidates with non-obstructive coronary disease not requiring invasive intervention should have aggressive management of risk factors and may be suitable for diving if adequate exercise capacity can be demonstrated. Although an exercise ECG is relatively insensitive to early coronary disease, it has the advantage of demonstrating exercise capacity and can be modified to test sustained exercise at 6 MET.

Left ventricular hypertrophy (LVH) is a risk factor for arrhythmias, which may be induced by exercise or immersion. Candidates for diving with this condition should be counseled about the risks of diving.

A patent foramen ovale (PFO) that exhibits right-to-left shunting with no or minimal provocation is a risk factor for serious neurological decompression sickness. In established divers, such lesions are usually discovered by bubble contrast echocardiography conducted after a relevant episode of decompression sickness. These divers are usually advised either to cease diving, modify their diving to reduce venous bubble formation (venous bubbles crossing from right to left are almost certainly the vectors of harm in this setting), or to have the PFO repaired. Occasionally, new diver candidates have a previously discovered PFO, and in such cases an objective assessment of the shunting behavior of the lesion is required in order to adequately counsel the candidate about the implied risks in diving. If not already done, this is best achieved using bubble contrast transthoracic echocardiography at rest and with provocative maneuvers. It is strongly recommended that the results of such tests are discussed with a physician trained in diving medicine. Routine screening of all diving candidates for PFO is not recommended.

In relation to some specific cardiovascular diagnoses: Treated hypertension with adequate control is acceptable in diving in the absence of other risk factors that would meet a risk threshold indicating screening for coronary artery disease. Atrial fibrillation that is adequately rate-controlled in a candidate without inducible myocardial ischemia and who exhibits adequate exercise capacity is acceptable in diving. However, many such candidates are anticoagulated and the risks of diving whilst anticoagulated would need to be understood and carefully considered by the candidate. This is best achieved through discussion with a physician trained in diving medicine.

Immersion pulmonary edema is a problem that has been seen in swimmers, compressed gas divers, and freedivers. The condition may be under-diagnosed. Risk factors include hypertension, valvular disease, diastolic dysfunction, cardiomyopathies, pulmonary hypertension, hyperhydration, immersion, cold stress, constrictive garments, exercise, and for compressed gas divers, increased breathing resistance (affected by equipment, gas density, and body position), and for freedivers, pulmonary squeeze due to compression during descent. A single episode of immersion pulmonary edema may contra-indicate further diving if no modifiable risk factors are found. Repetitive cases represent a strong contra-indication. A diver or new diving candidate with such a history should be referred to a physician trained in diving medicine for discussion of the relevant issues.

Candidates with pacemakers may be able to dive, though pacemaker-dependent candidates should consider the risks carefully. The pathologic process that necessitated the pacemaker should be considered as should the candidate's functional capacity (see above). Pacemakers must be certified by the manufacturer as able to withstand the pressure changes involved in recreational diving. Devices vary in this regard, but diving beyond 30 meters/100 feet with any of them is unwise.

## **Severe Risk Conditions**

- Untreated symptomatic coronary artery disease
- Dilated or obstructive cardiomyopathy
- Heart failure
- Pulmonary hypertension
- Long QT syndrome or other arrhythmia-inducing channelopathies
- Paroxysmal arrhythmias causing unconsciousness or impairment of exercise capacity
- Poor exercise capacity of apparent cardiac origin
- Moderate to severe valvular lesions
- Complex congenital cardiac disease
- Atrial septal defect
- Presence of an implanted cardiac defibrillator
- Multiple episodes of immersion pulmonary edema

## **Relative Risk Conditions**

- Treated coronary artery disease
- Collectively, risk factors such as age >45 years, hypertension, smoking, elevated cholesterol and a positive family history may indicate investigation for coronary artery disease
- History of dysrhythmias requiring medication for suppression
- Mild valvular lesions (need periodic re-evaluation)
- Cardiac prostheses or arrhythmias requiring anticoagulation
- Pacemakers
- Single previous episode of immersion pulmonary edema
- Marfan syndrome or other connective tissue disorder (severe risk if there is a history of dissection)
- Left ventricular hypertrophy

#### References

Denoble PJ, Holm JR, eds. Patent Foramen Ovale and Fitness to Dive Consensus Workshop Proceedings. Durham, NC: Divers Alert Network, 2015; 160 pp. Kumar M, Thompson PD. A literature review of immersion pulmonary edema. Physic Sportsmed. 2018; 47(2):148-151.

Lafay V, Trigano JA, Gardette B, Micoli C, Carre F. Effects of hyperbaric exposures on cardiac pacemakers. *Br J Sports Med.* 2008;42(3):212-216 Mitchell SJ, Bove AA. Medical screening of recreational divers for cardiovascular disease: Consensus discussion at the Divers Alert Network Fatality Workshop. Undersea Hyperb Med. 2011; 38(4), 289-296.

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Pollock NW. Aerobic fitness and underwater diving. Diving Hyperb Med. 2007; 37(3): 118-124.

Smart D, Mitchell SJ, Wilmshurst P, Turner M, Banham N. Joint position statement on persistent (patent) foramen ovale and diving. South Pacific Underwater Medicine Society (SPUMS) and the United Kingdom Sports Diving Medical Committee (UKSDMC). Diving Hyperb Med. 2015; 45(2), 129-131.

## GASTROINTESTINAL

In general terms, there should be no gastrointestinal conditions present that increase the likelihood of vomiting, reflux, bleeding, perforation, diarrhea, or pain. Altered anatomical relationships secondary to surgery or malformations that lead to gas trapping may cause serious problems. Trapped gas expands as the diver surfaces and can lead to rupture or, in the case of the upper GI tract, emesis. Emesis underwater may lead to drowning. Dive activities may take place in areas remote from medical care, and the possibility of acute recurrences of disease must be considered.

## **Severe Risk Conditions**

- Active inflammatory bowel disease
- Gastric outlet obstruction of a degree sufficient to produce recurrent vomiting
- Chronic or recurrent small bowel obstruction
- Severe gastroesophageal reflux
- Achalasia
- Paraesophageal hernia
- Gastroparesis

## **Relative Risk Conditions**

- Inflammatory bowel disease when quiescent
- Functional bowel disorders

## **Temporary Risk Conditions**

- Peptic ulcer disease associated with pyloric obstruction or severe reflux
- Unrepaired hernias of the abdominal wall large enough to contain bowel within the hernia sac could incarcerate

#### References

Bennett PB, Cronje FJ, Campbell E, Marroni A, Pollock NW. Assessment of Diving Medical Fitness for Scuba Divers and Instructors. Flagstaff, AZ: Best Publishing. 2006; 241 pp.

Vote D. Gastrointestinal issues – consider them before returning to diving. <u>https://www.diversalertnetwork.org/medical/articles/</u> <u>Gastrointestinal\_Issues</u>

US Navy Diving Manual, Volume 2, Revision 7. Gastrointestinal distension.NAVSEA 0910-LP-115-1921. Naval Sea Systems Command: Washington, DC, 2016: 3-31-3-32.

## HEMATOLOGICAL

Abnormalities resulting in altered rheological properties may theoretically increase the risk of decompression sickness. Bleeding disorders could worsen the effects of otic or sinus barotrauma and exacerbate the injury associated with inner ear or spinal cord decompression sickness. Spontaneous bleeding into the joints (eg, in hemophilia) may be difficult to distinguish from decompression illness. Thrombophilic disorders (hereditary or acquired) may facilitate vascular thrombosis and susceptibility to DCS.

## **Relative Risk Conditions**

- Sickle cell disease
- Polycythemia vera
- Leukemia
- Hemophilia/Impaired coagulation
- Recent blood transfusion
- Recent thrombotic episodes
- Hereditary hypercoagulability conditions
  - Factor V Leiden
  - Prothrombin 20210A
  - Protein C deficiency

- Protein S deficiency
- Antithrombin deficiency

## **Temporary Risk Conditions**

• Prescription of anti-coagulant drugs of any kind, including platelet aggregation inhibitors

#### References

Bennett PB, Cronje FJ, Campbell E, Marroni A, Pollock NW. Assessment of Diving Medical Fitness for Scuba Divers and Instructors. Flagstaff, AZ: Best Publishing. 2006; pp 97-104.

Parker J. Haematology. In: The Sports Diving Medical, 2nd Edition. JL Publications, Melbourne 2002, pp 100-102.

Wendling J, et al. Haematological disorders. In: Medical Assessment of Fitness to Dive. International Edition. Hyperbaric Editions CH 2502 Biel, 2001, pp 126. ISBN 3-9522284-1-9.

## METABOLIC AND ENDOCRINOLOGICAL

States of altered hormonal or metabolic function should be assessed according to their impact on the individual's ability to tolerate the moderate exercise requirement and environmental stress of sport diving. Obesity may predispose the individual to decompression sickness, can impair exercise tolerance and is a risk factor for coronary artery disease.

## **Severe Risk Conditions**

- The potentially rapid change in level of consciousness associated with hypoglycemia in diabetics on insulin therapy or certain oral hypoglycemic medications can result in drowning. Diving is therefore generally contraindicated, except when conducted according to the consensus guidelines for recreational diving with diabetes.
- Pregnancy: The effect of venous emboli formed during decompression on the fetus has been proven to be potentially detrimental to fetus health. Diving is therefore not recommended during any stage of pregnancy or for women actively seeking to become pregnant. (Note that in cases where pregnancy is discovered after diving, it is not considered grounds for termination.)

## **Relative Risk Conditions**

- Hormonal excess or deficiency
- Obesity
- Renal insufficiency

#### References

Damnon F, de Rham M, Baud D. Should a pregnancy test be required before scuba diving? Br J Sports Med. 2016; 50(18): 1159-1160. Dear GdeL, Pollock NW, Uguccioni DM, Dovenbarger J, Feinglos MN, Moon RE. Plasma glucose response to recreational diving in divers with insulin-requiring diabetes. Undersea Hyperb Med. 2004; 31(3): 291-301.

Held HE, Pollock NW. The risks of diving while pregnant - reviewing the research. Alert Diver. 2007; Mar/Apr: 48-51.

Pollock NW, Uguccioni DM, Dear GdeL. Diabetes and recreational diving: guidelines for the future. Diving Hyperb Med 2006; 36(1): 29-34.

## **NEUROLOGICAL**

Neurological illnesses, especially those affecting the spinal cord and peripheral nerves, should be assessed according to the degree of functional compromise present. Any condition that diminishes the reserve capacity of the spinal cord may reduce the likelihood of a full functional recovery, should an episode of spinal decompression sickness occur. Conditions in which there can be a waxing and waning of neurological symptoms and signs, such as migraine or demyelinating disease, may contraindicate diving, because an exacerbation or attack of the pre-existing disease (eg, migraine headache with aura) may be difficult to distinguish from neurological decompression

sickness. A history of head injury resulting in unconsciousness should be evaluated for risk of seizure. A diagnosis of epilepsy is considered an absolute contraindication for diving.

## **Severe Risk Conditions**

Any abnormalities where there is a significant probability of unconsciousness, hence putting the diver at increased risk of drowning. Divers with spinal cord or brain abnormalities where perfusion is impaired may be at increased risk of decompression sickness.

Some conditions are as follows:

- Epilepsy or history of seizures, other than childhood febrile seizures
- History of transient ischemic attack (TIA) or cerebrovascular accident (CVA)
- History of serious (central nervous system, cerebral or inner ear) decompression sickness with residual deficits
- Recurrent episodes of loss of consciousness or fainting

## **Relative Risk Conditions**

Complicated migraine headaches, particularly if severe, frequent or presenting with neurological manifestations eg, motor, sensory or cognitive disturbance.

- History of head injury with sequelae other than seizure
- Herniated nucleus pulposus
- Intracranial tumor or aneurysm
- Peripheral neuropathy
- Multiple sclerosis
- Trigeminal neuralgia
- History of spinal cord or brain injury
- Parkinson's disease

#### References

Bennett PB, Cronje FJ, Campbell E, Marroni A, Pollock NW. Assessment of Diving Medical Fitness for Scuba Divers and Instructors. Flagstaff, AZ: Best Publishing. 2006; 241 pp. 173-188.

Burkett JG, Nahas-Geiger SJ. Diving Headache. Curr Pain Headache Rep. 2019;23(7):46.

Massey EW, Moon RE. Neurology and diving. Handb Clin Neurol. 2014;120:959-969.

Rosinska J, Łukasik M, Kozubski W. Neurological complications of underwater diving. Neurol Neurochir Pol. 2015;49(1):45-51.

UK Diving Medical Committee, Neurological disease. http://www.ukdmc.org/medical-conditions/neurological-disease/

## **ORTHOPEDIC**

Mobility above and under the water is an essential requirement for any sport or recreational diver. Entering the water from shore or a dive boat, underwater propulsion and exiting into a dive boat or onto shore should be possible without great difficulty.

Relative impairment of mobility, particularly on a boat or ashore with equipment weighing up to 30 kg/66 lb (or significantly more in the case of cold water or for more equipment intensive activities, for example), must be assessed. Orthopedic conditions of a degree sufficient to impair exercise performance may increase the risk.

In some cases, like amputations resulting in various degrees of disability, it would be advisable to judge case by case by a physician trained in diving medicine.

## **Relative Risk Conditions**

- Amputation
- Scoliosis: must also assess impact on respiratory function and exercise performance
- Aseptic necrosis: possible risk of accelerated progression due to the effects of decompression
- Disc prolapse
- Habitual luxation (eg, shoulder, hip, patella)
- Degenerative joint diseases

## **Temporary Risk Conditions**

- Back pain
- Fractures until complete healing of bone and soft tissue and positive weight bearing tests taking into consideration the weight of the used dive gear on land
- Muscle-tendon and ligament injuries
- Completion of physiotherapy/rehabilitation regimes

#### References

Moeller JL. Contraindications to athletic participation. Physic Sportsmed. 1996; 24(9): 57-75.

## **OTOLARYNGOLOGICAL**

Equalization of pressure must take place during ascent and descent between ambient water pressure and the external auditory canal, middle ear, and paranasal sinuses. Failure of this to occur results at least in pain and in the worst-case rupture of the occluded space with disabling and possible lethal consequences. The inner ear is fluid filled and therefore noncompressible. The flexible interfaces between the middle and inner ear, the round and oval windows are, however, subject to pressure changes. Previously ruptured but healed round or oval window membranes may be prone to reinjury with marked overpressurization during vigorous or explosive Valsalva maneuvers. The larynx and pharynx must be free of obstruction to airflow. The laryngeal and epiglottic structures must function normally to prevent aspiration. Mandibular and maxillary function must be capable of allowing the candidate to hold a scuba regulator mouthpiece. Individuals who have had mid-face fractures may be prone to barotrauma and rupture of the air-filled cavities involved.

## **Severe Risk Conditions**

- Monomeric tympanic membrane (TM)
- Open TM perforation
- Tube myringotomy
- History of stapedectomy
- History of ossicular chain surgery
- History of inner ear surgery
- Facial nerve paralysis secondary to barotrauma
- Inner ear disease other than presbycusis
- Uncorrected upper airway obstruction
- Laryngectomy or status post partial laryngectomy
- Tracheostomy
- Uncorrected laryngocele

- History of vestibular decompression sickness
- Symptomatic nasal or sinus polyps
- Ménière's disease

## **Relative Risk Conditions**

- Recurrent otitis externa
- Significant obstruction of external auditory canal
- History of significant cold injury to pinna
- Eustachian tube dysfunction
- Recurrent otitis media or sinusitis
- History of TM perforation
- History of tympanoplasty
- History of mastoidectomy
- Significant conductive or sensorineural hearing impairment
- Facial nerve paralysis not associated with barotrauma
- Full prosthodontic devices
- History of mid-face fracture
- Unhealed oral surgery sites
- History of head and/or neck therapeutic radiation
- History of temporomandibular joint dysfunction
- History of round window rupture
- Symptomatic nasal septum deviation
- Recurrent benign positional vertigo
- Otosclerosis

#### References

Lechner M, Sutton L, Fishman JM, Kaylie DM, Moon RE, Masterson L, et al. Otorhinolaryngology and diving - part 1: otorhinolaryngological hazards related to compressed gas scuba diving: a review. JAMA Otolaryngol Head Neck Surg. 2018;144(3):252-258.

Lechner M, Sutton L, Fishman JM, Kaylie DM, Moon RE, Masterson L, et al. Otorhinolaryngology and diving – part 2: otorhinolaryngological fitness for compressed gas scuba diving: a review. JAMA Otolaryngol Head Neck Surg. 2018;144(3):259-263.

Molvaer OI. Otorhinolaryngological aspects of diving. In: Bennett PB, Elliott DH, eds. Physiology and Medicine of Diving, 5th ed. Saunders, Edinburgh, 2003. P227-P264.

Wendling J, et al. Otorhinolaryngology. In: Medical Assessment of Fitness to Dive. International Edition. Hyperbaric Editions CH 2502 Biel, 2001. Pp25-48. ISBN 3-9522284-1-9.

## **PULMONARY**

Any process or lesion that impedes airflow from the lungs places the diver at risk for pulmonary over inflation with alveolar rupture and the possibility of cerebral air embolization. Many interstitial diseases predispose to spontaneous pneumothorax: asthma, chronic obstructive pulmonary disease (COPD), cystic or cavitating lung diseases may all cause air trapping.

Undersea and Hyperbaric Medical Society and British Thoracic Society guidelines recommend that asthmatics should be advised not to dive if they have wheeze precipitated by exercise, cold, or emotion. Asthmatic individuals who are currently well controlled and have normal pulmonary function tests may dive if they have a negative exercise test. Many people with asthma have well controlled disease and are physically fit. They may, however, show minor abnormalities on spirometry at rest or after exercise. Those with a history of severe or unpredictable

acute exacerbations are not fit to dive. For those without such a history, the overriding consideration is that the candidate must be physically fit and not impaired after exercise or cold air breathing, which is the normal case of gas expanding from within a scuba cylinder. The best way to assess fitness is with an exercise test. Inhalation challenge tests (eg, using histamine, hypertonic saline or methacholine) are not sufficiently standardized to be interpreted in the context of scuba diving. If persons with breathing issues are cleared to dive, they need to take their regular inhalers and should not dive if suffering symptoms suggestive of exacerbation. Note that the FEV<sub>1</sub>/FVC ratio may be reduced below predicted, but provided there is no deterioration after exercise and the person performs well on the exercise test, a mildly obstructed spirometric tracing on its own is not a contraindication to diving.

A pneumothorax that occurs while diving may be catastrophic. As the diver ascends, trapped gas expands and could produce a tension pneumothorax. In addition to the risk of pulmonary barotrauma, respiratory disease due to either structural disorders of the lung or chest wall or neuromuscular disease may impair exercise performance. Individuals who have experienced spontaneous pneumothorax are at risk of recurrence, and should avoid diving, even after a surgical procedure designed to prevent recurrence (such as pleurodesis). Surgical procedures either do not correct the underlying lung abnormality (eg, pleurodesis, apical pleurectomy) or may not totally correct it (eg, resection of blebs or bullae). A high-resolution CT (HRCT) scan of the lungs may reveal cysts or blebs that represent a risk. Persons who have no parenchymal abnormality on HRCT and have had bilateral surgical pleurodesis (including VATS pleurodesis) may be cleared to dive. However, in most cases, a history of spontaneous pneumothorax will be an absolute contraindication to diving. Traumatic pneumothorax is not a problem as the likelihood of subsequent spontaneous pneumothorax is vanishingly low.

Structural disorders of the chest or abdominal wall or neuromuscular disorders may impair cough, which could be life threatening if water is aspirated. Respiratory limitation due to disease is compounded by the combined effects of immersion (causing a restrictive deficit) and the increase in gas density, which increases in proportion to the ambient pressure (causing increased airway resistance). Formal exercise testing may be helpful.

The emergence of COVID-19 has placed an additional layer of complexity related to fitness to dive evaluations. It is beyond the scope of this document to prescribe or mandate specific tests or timelines related to fitness to dive determinations. What is of importance is awareness of the potential body systems effected by COVID-19, and to take a thoughtful and thorough history related to disease course, time since the infection resolved, and state of physical and mental health at the time of the examination.

Clinical factors that are important to consider include symptom severity during the infection and need for intensive care (e.g., ventilator support). Disease severity likely correlates with the extent of pulmonary injury and potential cardiac involvement, and in the case of intubation, may be associated with severe deconditioning, muscle atrophy and even post-traumatic stress. As such, assessment of the diver with a history of COVID-19, may require more than just a pulmonary evaluation. At the time of this publication, the medical community does not have sufficient data to support arbitrary requirements for specific testing, nor duration of post-infection convalescence after which individuals can be considered safe to return to diving.

# The following documents provide current guidance on investigation of COVID-19 patients prior to diving. This is an area that is evolving and updated often; please see these resources for more current information and considerations regarding these issues.

UC San Diego Guidelines for Evaluation of Divers during COVID-19 pandemic

Centers for Disease Control and Prevention, People Who Are at Higher Risk for Severe Illness

European Committee for Hyperbaric Medicine and European Underwater and Baromedical Society, COVID-19 Pandemic – Position Statements

For those looking for aseptic practices, the following resources may be useful:

**Divers Alert Network Europe** 

**Divers Alert Network Americas** 

## **Severe Risk Conditions**

- History of spontaneous pneumothorax (see notes)
- Impaired exercise performance due to respiratory disease
- Respiratory impairment secondary to cold gas breathing
- Pulmonary hypertension

## **Relative Risk Conditions**

- Asthma, reactive airway disease (RAD), exercise-induced bronchospasm (EIB) or COPD (see notes)
- Solid, cystic or cavitating lesion
- Pneumothorax secondary to:
  - Thoracic surgery
  - Trauma or pleural penetration (see notes)
  - Previous overinflation injury
- Obesity
- History of immersion pulmonary edema or restrictive disease
- Interstitial lung disease: may increase the risk of pneumothorax and likely to limit exertion
- Sleep apnea

#### References

Godden D, Currie G, Denison D, Farrell P, Ross J, Stephenson R, Watt S, Wilmshurst P. British Thoracic Society guidelines on respiratory aspects of fitness for diving. Thorax. 2003;58:3-13.

## **DIVERS ALERT NETWORK (DAN)**

Divers Alert Network (DAN), a non-profit organization, provides medical information and advice for the benefit of the diving public. DAN is not a regulatory agency and does not set physical standards or guidelines for scuba diving. The responsibility for the decision of whether or not to dive is generally left up to the individual, the physician, as well as the dive provider. This decision, however, should be based on the most current diving medical information available.

DAN may be able to provide current medical literature and information that can be used to assist in this decision-making process. If desired, DAN may also provide referrals to local physicians who are knowledgeable in dive medicine and physiology. However, DAN cannot and does not decide whether an individual may or may not participate in the sport of scuba diving. For more information, please feel free to contact one of the DAN offices listed below.

## DAN America (US)

Physicians and other medical professionals associated with DAN America are available for consultation by phone, during normal business hours Monday through Friday, 8:00 AM to 8:00 PM Eastern Time US. +1-919-684-2948 ext. 6222 www.DAN.org

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DAN Europe (Italy) +39-085-8930333 www.DANEurope.org

#### **DAN Asia-Pacific (Australia)**

+61-3-9886-9166 www.DANAP.org

#### **DAN Southern Africa (South Africa)**

+27-11-266-4900 www.DANSA.org

#### DAN Japan (Yokohama)

+045-228-3066 Medical Information Line service is provided in Japanese only. www.danjapan.gr.jp

These guidelines were created by the Diving Medical Screen Committee (DMSC). The DMSC periodically reviews them to ensure they continue to represent current best practice in hyperbaric medicine.