

### The aging diver

**DIVING MEDICAL CONSIDERATIONS** 



INTRODUCTION

## Diving – a sport for older connoisseurs

Nowadays there are more divers at a higher age. They are eager to savour their active time as a diver as intensively as possible. Their well-chosen dive locations often lead them to the tropics and subtropics for long periods of time. There are also more divers at a higher age, not only on diving safaris. We know that older divers rather look for enjoyment than adventure. They also dive more safely, because they are more cautious and usually very experienced. They are also more willing to act responsibly and accept restrictions regarding their diving activities in case of physical limitations.

#### Age-related physical limitations

With aging, more chronic diseases can be associated, which often leads to permanent medication. The medication must be compatible with diving. This also applies to medical aids and medical devices such as pacemakers. Here, advice from the diving doctor is required. While examining the fitness to dive he must consider typical age-related limitations to it.



# Risks to the cardiovascular system

Already immersion itself can trigger certain physical reactions. This can have an unfavourable effect especially on older divers.

- · Fluid shift into the body core
- · Constriction of the blood vessels of the skin
- · Significant increase of urine excretion

The inevitable consequences of these immersion effects are significant fluid loss. In the elderly, this can have a particularly unfavourable effect, because they often tend to drink less anyway. Especially in summer or in (sub) tropical climates dehydration can quickly occur and cause serious diving accidents. "Thick blood" cannot properly contribute to removal (elimination) of inert gas.

These immersion effects are especially risky for the cardiovascular system. The fluid shift into the centre of the body forces the heart to suddenly pump more. If skin circulation is reduced as well, the heart has to work against an even higher resistance. Possible direct consequences are:

- · Acute hypertension
- Circulatory disorders of the heart
- · Triggering cardiac arrhythmias
- Acute breathlessness

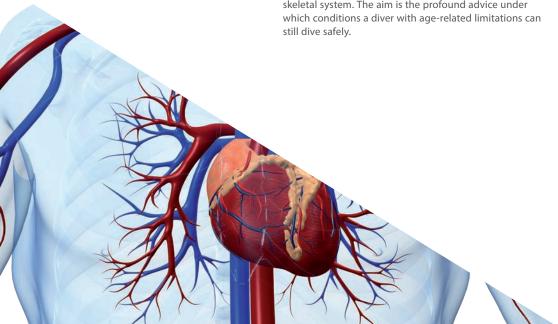
Not only pre-existing heart disease may lead to serious health situations in or underwater but also increased risk of drowning as well as sudden cardiac death exist.



The burden of swimming underwater is surprisingly high. This is due to the depth-dependent increased breathing gas density. The changes in the respiratory mechanics will allow for already existing health restrictions of the respiratory organs to manifest themselves suddenly. Even in experienced divers, usually less than 5% of the body energy will go to the fin. The limiting factor is the respiratory mechanics. It can guickly get out of hand with overexertion.

#### Special attention during medical examination

During the medical check-up of older divers the examining diving doctor will therefore focus primarily on the function diagnostics of both cardiovascular and respiratory system, and thereby assess physical exercise capacity and endurance as well as check muscle and skeletal system. The aim is the profound advice under which conditions a diver with age-related limitations carefull diversefoly.



ADVICE

## Advice for safe diving at an advanced age

#### Expand your safety margin

- · choose shorter and shallower dives
- respect safety stops and use slow ascent rates
- · reduce repetitive dives
- · use nitrox instead of air as breathing gas

#### Maintain performance tolerance

 do suitable age-adapted sports activities with focus on endurance and muscle strength

#### Avoid dehydration

sufficient hydration before diving
TIP: good salivation is a sign of fluid balance

#### Reduce burden

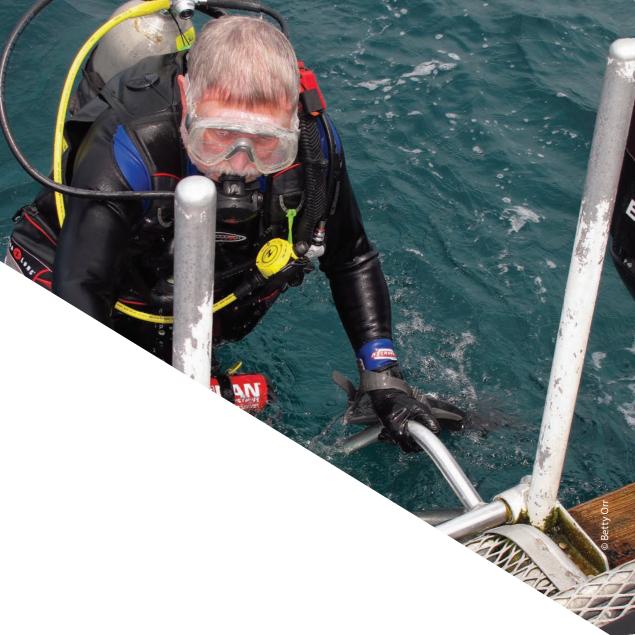
- do not challenge your physical performance limits intentionally
- · avoid stress by diving relaxed

#### Avoid jumping into the water

slide into the water to minimise the acute immersion effects

#### Optimise cold protection

 the individual cold protection should be designed that even a slight chill is avoided



FAQ

### Answers to FAQs of older divers

At what age should I reduce diving?

It is the biological age that counts, not the actual age. Starting at the age of 40 the annual medical examination for diving fitness should be more thorough and even more focussed on the "older diver" beyond the age of 55.

When should I stop going diving?

Your body will tell you. The actual age is not decisive. When it comes to health, when the body sends its own signals that diving feels burdensome or staying underwater feels unpleasant, then the time has come to reconsider.

Should I dive more conservatively?

Yes, it is strongly encouraged. There are a number of recommendations for safe diving. These should definitely be considered by older divers.

Are older divers more susceptible to decompression sickness?

Not necessarily. However, they can significantly reduce their risk of decompression illness by proper hydration before diving. Changes in the lungs at a higher age theoretically increase the risk. This risk can be reduced by ascending slowly and the use of safety stops.





THE AGING DIVER

### A DAN-SA safety campaign

When is a diver actually an "older diver", from the diving medical point of view? The answer is given by the general state of health. The "biological age" is much more important than the calendrical age. Starting at the age of 40 the medical examination for diving fitness should be more thorough and even more intense beyond the age of 55.

This campaign focuses on the special diving medical aspects for older divers.

Discover more about this and other DAN-SA safety campaigns on

www.dansa.org





Follow our campaign on Facebook and Twitter:

Safety campaigns are financed by DAN-SA membership dues. Thanks to all members for their precious support!

mail@dansa.org www.dansa.org

