

## DFA Pro

### Neurological Assessment



### Brain Injury

- Occurs when blood flow to the brain is interrupted
  - result of AGE in scuba diving
  - stroke
- Prompt intervention can prevent or reduce permanent disability

**F**

Facial droop

**A**

Arm weakness

**S**

Speech difficulty, sudden  
severe headache

**T**

Time (note the time, and  
call EMS immediately)

## DFA Pro

### Neurological Assessment

**F-A-S-T** examination is an easy way to determine if signs neurological injury are present

- Occurs on one side of the face; can involve left or right side
- Ask the injured person to raise both arms, wait 10 seconds for any lowering
- Inability to speak clearly or verbalize. Often associated with facial droop
- Call 9-1-1 (emergency services) if any of these symptoms are present

**F**

Facial droop

**A**

Arm weakness

**S**

Speech difficulty, sudden  
severe headache

**T**

Time (note the time, and  
call EMS immediately)

## DFA Pro

### Neurological Assessment

**Remember F-A-S-T First**

Regardless of cause, if a neurological injury is suspected

- Call local EMS immediately
- Be prepared to initiate CPR
- If injury is dive related, provide oxygen first aid
- Complete full neurological assessment

**Note:**

Performing a neurological assessment should never interfere with EMS activation, evacuation or essential first-aid measures such as CPR or stopping severe bleeding.

**F**

Facial droop

**A**

Arm weakness

**S**

Speech difficulty, sudden  
severe headache

**T**

Time (note the time, and  
call EMS immediately)

## DFA Pro

Neurological Assessment

**SKILL**

**F-A-S-T**

**Neurological Assessment (Neuro)**

**History**  
Date \_\_\_\_\_ Time \_\_\_\_\_  
Injured Person's Name \_\_\_\_\_

**Conduct F-A-S-T** (check areas of abnormal findings)  
 Facial Symmetry  Arms  Speech/Sudden Headache  Time  
 (activate EMS if any abnormal findings are present)

**Complete S-A-M-P-L-E** (note responses in spaces provided)

**Signs and Symptoms**  
 Allergies \_\_\_\_\_  
 Medications \_\_\_\_\_  
 Pre-existing conditions \_\_\_\_\_  
 Last oral intake (what and time) \_\_\_\_\_  
 Events leading up to incident \_\_\_\_\_

**For Divers:**  
 Dives during previous 24 hours:  
 Last dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Unusual features of any dive \_\_\_\_\_  
 Diver used:  Computer  
 Location of any pain \_\_\_\_\_  
 Does movement change?  Yes  
 Locate dive buddy?  Yes  
 Notes: (attach) \_\_\_\_\_

**Notes:** (attach) \_\_\_\_\_

**Emergency Hotline +1 (919) 684-9111**

**DAN**

## DFA Pro

### Conducting a Neurological Assessment

### Use as a Follow-up to F-A-S-T

- May help to uncover subtle symptoms
- Once a problem is identified, call EMS
- Provide oxygen if injury is dive related
- Be prepared to initiate CPR

**Neurological Assessment (Neuro)**

**History**  
Date \_\_\_\_\_ Time \_\_\_\_\_  
Injured Person's Name \_\_\_\_\_

**Conduct F-A-S-T (check areas of abnormal findings)**  
 Facial Symmetry    Arms    Speech/Sudden Headache    Time  
 (check off EMS if any abnormal findings are present)

**Complete S-A-M-P-L-E (note responses in spaces provided)**

**Signs and Symptoms**  
 Allergies \_\_\_\_\_  
 Medications \_\_\_\_\_  
 Pre-existing conditions \_\_\_\_\_  
 Last oral intake (what and time) \_\_\_\_\_  
 Events leading up to the incident \_\_\_\_\_

**For Divers:**  
 Dives during previous 24 hours:  
 Last dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Unusual features of any dive \_\_\_\_\_  
 Diver used:  Computer  
 Location of any pain \_\_\_\_\_  
 Does movement change?  Yes \_\_\_\_\_  
 Locate dive buddy?  Yes \_\_\_\_\_

**Notes:** (attach \_\_\_\_\_)

**Emergency Hotline +1 (919) 684-9111**

**DAN**

## DFA Pro

### Conducting a Neurological Assessment

#### Begin with Taking a **History**

- Identify what happened
- Uncover pre-existing conditions

- S** - Signs/Symptoms
- A** - Allergies
- M** - Medications
- P** - Pertinent medical history
- L** - Last oral intake
- E** - Events leading to the current situation



## DFA Pro

Conducting a Neurological Assessment

## SKILLS

**Taking a History**  
**Taking Vital Signs**

**Neurological Assessment (Neuro)**

**History**  
Date \_\_\_\_\_ Time \_\_\_\_\_  
Injured Person's Name \_\_\_\_\_

**Conduct F-A-S-T** (check areas of abnormal findings)  
 Facial Symmetry  Arms  Speech/Sudden Headache  Time  
 (activate EMS if any abnormal findings are present)

**Complete S-A-M-P-L-E** (note responses in spaces provided)

**Vital Signs** Time \_\_\_\_\_ Pulse \_\_\_\_\_ Resp. \_\_\_\_\_ 2nd Time \_\_\_\_\_ Pulse \_\_\_\_\_ Resp. \_\_\_\_\_

**Mental Function**  
Consciousness (check one):  
 Alert  Verbal  Pain  Unresponsive  
 Ability to follow commands:  
 "Stick out your tongue and close your eyes."  
 Ex: "no ifs, ands, or buts!"  Yes  No  
 Ability to repeat a simple phrase:  
 Ex: "no ifs, ands, or buts!"  Yes  No  
 Name three objects (able to complete):  Yes  No  
 Abstract reasoning (able to explain relationship):  Yes  No  
 Ex: Father/Son Student/Teacher Pencil/Paper  
 Calculations: count backward from 100 by 7s (able to miss):  Yes  No  
 Memory (able to recall the three items identified earlier):  Yes  No

**Cranial Nerves**  
 Eyes (circle any direction unable to look): Left  Right  Up  Down  
 Facial Symmetry "Close your eyes and smile":  Yes  No  
 Hearing Symmetry (from about 30 cm (1 ft)):  Yes  No

**Motor Function**  
 Scale (note in blank next to area): Normal (N) Weak (W) Paralyzed (P)  
 Upper Body: Shoulders  L  R Lower Body: Hip Flexors  L  R  
 Biceps  L  R Quadriceps  L  R  
 Triceps  L  R Hamstrings  L  R  
 Finger spread  L  R Foot - up  L  R  
 Grip Strength  L  R Foot - down  L  R

**Coordination and Balance**  
 Able to complete:  
 Finger - Nose - Finger: Eyes open:  Yes  No  
 Walk:  Normal  Wobbly  Unable  
 Eyes closed:  Yes  No  
 Romberg:  Yes  No

**Exam Repeated**  
 Time \_\_\_\_\_  
 Time \_\_\_\_\_  
 Comments \_\_\_\_\_  
 Comments \_\_\_\_\_

**DAN**

Emergency Hotline +1 (919) 684-9111

## DFA Pro

### The Four Functional Areas of a Neurological Assessment

- Mental function
- Cranial nerves
- Motor function
- Coordination and Balance

#### Note:

Performing a neurological assessment should never interfere with EMS activation, evacuation or essential first-aid measures such as CPR or stopping severe bleeding.



## DFA Pro

The Four Functional Areas of a Neurological Assessment

### Mental Function

- Assess Level of Consciousness (A V P U)
  - Alert**
  - Verbal stimulus**
  - Painful stimulus**
  - Unresponsive**
- Orientation to person, place, time, reason for being there
  - Note whether answers were correct
- Language Comprehension - ability to follow commands
- Speech - slurring
- Arithmetic - simple calculations
- Memory - short term



## DFA Pro

The Four Functional Areas of a Neurological Assessment

### Cranial Nerves

Assess facial movement and hearing

- Eye Control
- Facial Symmetry and Control
- Hearing

**Neurological Assessment (Neuro)**

**History**  
Date \_\_\_\_\_ Time \_\_\_\_\_  
Injured Person's Name \_\_\_\_\_

**Conduct F-A-S-T (check areas of abnormal findings)**  
 Facial Symmetry  Arms  Speech/Sudden Headache  Time  
 (check off EMS if any abnormal findings are present)

**Complete S-A-M-P-L-E (note responses in spaces provided)**

**Signs and Symptoms**  
 Allergies \_\_\_\_\_  
 Medications \_\_\_\_\_  
 Pre-existing conditions \_\_\_\_\_  
 Last oral intake (what and time) \_\_\_\_\_  
 Events leading up to incident \_\_\_\_\_

**For Divers:**  
 Dives during previous 24 hours:  
 Last dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Surface interval \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Previous dive: Depth \_\_\_\_\_ Bottom Time \_\_\_\_\_  
 Unusual features of any dive \_\_\_\_\_  
 Diver used:  Computer  
 Location of any pain \_\_\_\_\_  
 Does movement change \_\_\_\_\_  
 Locate dive buddy (c) \_\_\_\_\_

**Notes:** (attach \_\_\_\_\_)

**Emergency Hotline +1 (919) 684-9111**

**Neurological Assessment (Neuro)**

**Vital Signs** Time \_\_\_\_\_ Pulse \_\_\_\_\_ Resp. \_\_\_\_\_ **2nd Time** \_\_\_\_\_ Pulse \_\_\_\_\_ Resp. \_\_\_\_\_

**Mental Function**  
**Consciousness (check one):**  
 Alert  Verbal  Pain  Unresponsive  
**Ability to follow commands:**  
 "Stick out your tongue and close your eyes."  
 Ex: "no its, ands, or buts"  
 Yes  No  
 Name three objects able to complete:  
 Ex: Father/Son Student/Teacher Pencil/Paper  
**Abstract reasoning (table to explain relationship):**  
 Ex: 93 88 79 72 65 58 51 44 37 30 23 16 9 2  
**Calculations:** count backward from 100 by 7s (circle missed):  
 93 88 79 72 65 58 51 44 37 30 23 16 9 2  
**Memory (table to recall the three items identified earlier):**  
 Eyes (circle any direction unable to look): Left \_\_\_\_\_ Right \_\_\_\_\_ Up \_\_\_\_\_ Down \_\_\_\_\_  
 Facial Symmetry: Head symmetrical from about 30 cm (1 foot):  Yes  No

**Motor Function**  
 Scale (note in blank next to area): Normal (N) Weak (W) Paralyzed (P)  
 Upper Body: Shoulders L\_\_\_\_\_R\_\_\_\_\_ Lower Body: Hip Flexors L\_\_\_\_\_R\_\_\_\_\_  
 Biceps L\_\_\_\_\_R\_\_\_\_\_ Triceps L\_\_\_\_\_R\_\_\_\_\_ Quadriceps L\_\_\_\_\_R\_\_\_\_\_  
 Finger spread L\_\_\_\_\_R\_\_\_\_\_ Grip Strength L\_\_\_\_\_R\_\_\_\_\_ Hamstrings L\_\_\_\_\_R\_\_\_\_\_  
 Foot - up L\_\_\_\_\_R\_\_\_\_\_ Foot - down L\_\_\_\_\_R\_\_\_\_\_

**Coordination and Balance**  
 Able to complete:  
 Finger - Nose - Finger: Eyes open:  Yes  No  
 Eyes closed:  Yes  No  
 Walk:  Normal  Wobbly  Unable  
**Exam Repeated**  
 Time \_\_\_\_\_ Time \_\_\_\_\_  
 Comments \_\_\_\_\_ Comments \_\_\_\_\_

**DAN**

## DFA Pro

The Four Functional Areas of a Neurological Assessment

### Motor Function

- Assess motor strength and function.
- Symptoms may range from weakness to paralysis.
- Proper examination entails comparison with the other side of the body.
- Subtle abnormalities are often detected or confirmed by this process.





## DFA Pro

The Four Functional Areas of a Neurological Assessment

### Coordination and Balance

- Assess coordination and balance if the injured person's responses are normal to this point
  - Finger-nose-finger
  - Walking
  - Romberg
- DCI or other injuries may cause nerve-cell injury or impairment affecting coordination and balance.



## DFA Pro

Conducting a Neurological Assessment

## SKILLS

Mental Function

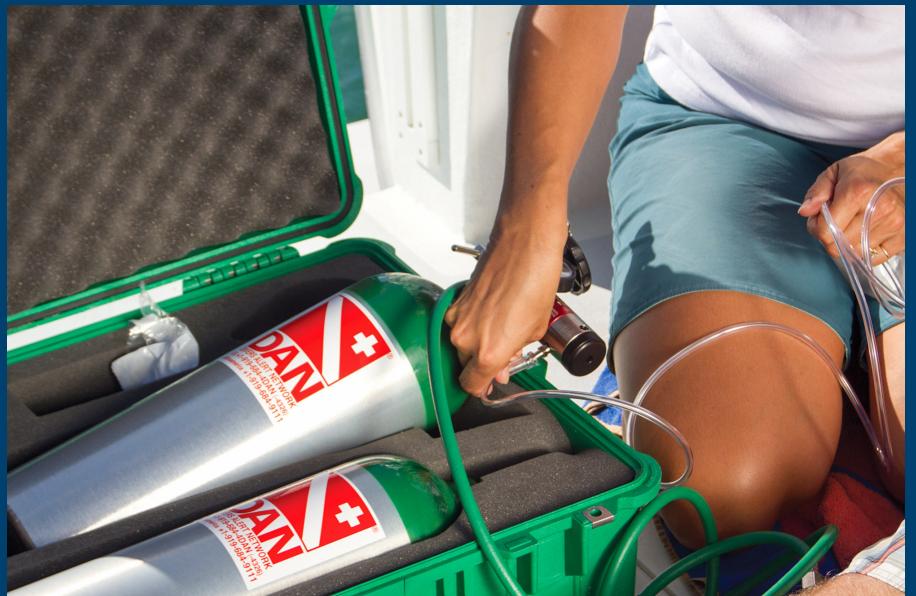
Cranial Nerves

Motor Strength

Coordination and Balance

## DFA Pro

Oxygen First Aid in Scuba Diving Injuries



Oxygen and Diving Injuries  
Handling Oxygen Safely  
Oxygen Delivery Systems  
and Components



## DFA Pro

### Oxygen and Diving Injuries

Oxygen is the primary first aid for scuba diving and submersion injuries

Goal is to **deliver highest concentration of oxygen possible**

#### Benefits of oxygen administration

- Acceleration of inert gas elimination
- Reduces bubble size and improves circulation
- Enhances oxygen delivery to tissues
- Reduces swelling





## DFA Pro

### Oxygen and Diving Injuries

#### Nonfatal Drowning

- When someone nearly died because they were submerged and unable to breathe
- Oxygen first aid indicated as well

#### Symptoms:

- Difficulty breathing
- Bluish discoloration of lips
- Abdominal distention
- Chest pain
- Confusion
- Frothy sputum
- Irritability
- Unconsciousness

#### Rescuer Actions:

- Monitor vital signs
- Provide supplemental O<sub>2</sub>
- Transport to nearest medical facility

## DFA Pro

### Oxygen and Diving Injuries



**Variables impacting** delivered oxygen concentrations:

- Mask fit and flow rate
  - Enhanced flow rates are inefficient compensation for poor mask fit

**Priority of oxygen delivery** in remote areas:

- Deliver highest inspired fraction of oxygen



## DFA Pro

### Oxygen and Diving Injuries

#### Hazards of Breathing Oxygen

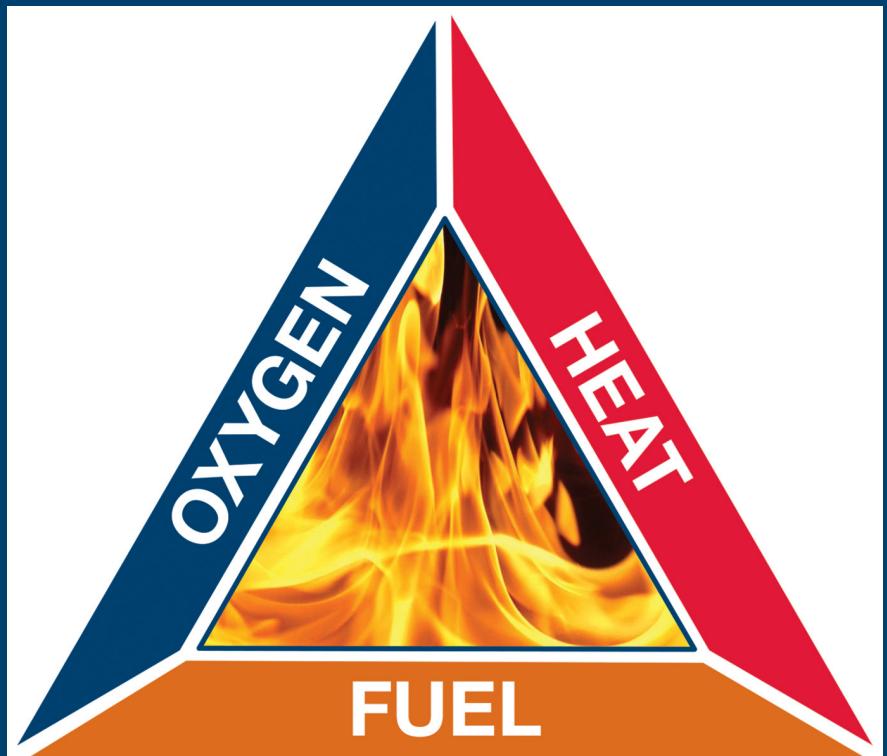
**Oxygen toxicity** is *not* a concern when rendering first aid

**Two forms of oxygen toxicity:**

**Central Nervous System toxicity** occurs when breathing oxygen at pressures usually greater than 1 ATM

- A concern for divers using diving gases with higher concentrations of oxygen (> 21%)

**Pulmonary Oxygen Toxicity** initial symptoms may occur after 12-16 hours of breathing high concentrations of oxygen for prolonged periods at the surface



## DFA Pro

### Handling Oxygen Safely

Oxygen is not flammable, but all substances need oxygen to burn and may burn violently in an environment of pure oxygen.

**Fire Triangle** is made up of three elements:

- Heat
- Fuel
- Oxygen

Reduce risks of handling oxygen by

Avoid fuel deposits  
(oil, hydrocarbons, lubricants)

Avoid heat from direct sun and from rapidly  
opening cylinder valve



## DFA Pro

### Handling Oxygen Safely

#### Oxygen Grades

- Aviator-grade oxygen
- Medical-grade oxygen
- Industrial-grade oxygen

Each must be 99.5 % pure oxygen

NOTE: differences exist in how cylinders are filled which affects overall purity of the oxygen.

**Industrial-grade oxygen is not recommended for use with dive injuries.**



## DFA Pro

### Handling Oxygen Safely

#### Safety Precautions When Using Oxygen

Oxygen cylinders require the same care as scuba cylinders with a few additional precautions:

- Do not allow the use of any oil or grease on any cylinder or device that comes in contact with oxygen. The result may be a fire.
- Oxygen cylinders should not be exposed to temperatures higher than 125°F (52°C) in storage (for example, in a car trunk).
- Do not allow smoking or an open flame around oxygen and oxygen equipment.



Standard SCUBA 'O' ring

Oxygen Washer

## DFA Pro

### Handling Oxygen Safely

- Open valves slowly to pressurize system.
  - Only open one full turn once pressurized for quick shut off if necessary
- Remember to provide adequate ventilation when using oxygen.
  - Confined poorly ventilated spaces (the cabin of a boat, for example) may allow build up of oxygen concentration and create a fire hazard.
- Use only equipment (cylinders, regulators, valves and gauges) made to be used with oxygen.
  - Avoid adapting scuba equipment for use with oxygen.

## DFA Pro

### Handling Oxygen Safely

- Visually inspect the condition of valve seats and oxygen washers, and make sure the materials are compatible for oxygen use.
- Keep the valves closed with the system purged when the unit is not in use.
  - Close valves on empty cylinders.
  - Empty cylinders should be refilled immediately after use.
- An oxygen cylinder should always be secured so that it cannot fall.
  - When transporting an oxygen cylinder in a car, secure and block the cylinder so it cannot roll.
  - When carrying an oxygen cylinder by hand, carry it with both hands and avoid holding it by the valve or regulator.





## DFA Pro

### Handling Oxygen Safely

#### Obtaining Oxygen cylinder fills

- Prescription
  - Most common method
  - Prospective prescription allows for administration by trained provider
- Commercial Gas
  - Documentation of current training in use of emergency oxygen
  - DFA Pro provider
  - Retraining required every two years



## DFA Pro

### Handling Oxygen Safely

#### Storage and Maintenance

- Keep unit in storage case
  - Fully assembled and off
  - Protects from corrosive properties of sea water
- Check before every dive outing
  - Keep cylinder full and ready to use
  - Clean thoroughly after each use



## DFA Pro

Oxygen Delivery Systems & Components

### Oxygen Delivery Systems

Include the following components

- Oxygen cylinder
- Pressure reducing regulator
- Hose
- Face mask





Cylinders showing green and white Shoulders.  
The grey shoulder is an unpainted cylinder.

## DFA Pro

### Oxygen Delivery Systems & Components

#### Cylinder Maintenance

- Cylinders are subject to periodic testing
  - Visual inspection annually
  - Hydrostatic testing 2-5 years
    - U.S. is 5 years

#### Color coding of cylinders

- Green – United States, Caribbean
- White – Canada and Europe, parts of Asia Pacific.

Check with your DFA Pro Instructor for requirements in your region.





## DFA Pro

### Oxygen Delivery Systems & Components

#### Oxygen Cylinders

- Should provide enough continuous delivery of oxygen from time of injury from farthest possible dive site to next level of emergency response
- Factors affecting delivery time
  - size of cylinder
  - oxygen flow rate
  - delivery device



## DFA Pro

### Oxygen Delivery Systems & Components

#### Oxygen Cylinders

- To determine oxygen delivery time
  - *Capacity in liters / flow in liters per minute = approximate delivery time*
- Change cylinder when pressure drops to 200 psi (14 bar)
  - If another cylinder is not available, use until oxygen is depleted



## DFA Pro

### Oxygen Delivery Systems & Components

#### Oxygen Pressure Regulator

- Reduces cylinder pressure to intermediate pressure
- Three options
  - Constant Flow
  - Demand
  - Multi-function
  - Can provide oxygen to two injured divers



## DFA Pro

### Oxygen Delivery Systems & Components

#### Oxygen Regulator Attachment Options

- Pins engage some regulators
  - Pin alignment is specific for each gas
  - Prevents oxygen regulator from being placed on a cylinder containing a different gas
- Threaded gas-outlet valves specific for
  - oxygen also used in some areas
  - (Ex.: charter boats with larger cylinders)
- Adapters may be available for travel
  - to other areas
  - Must be oxygen clean

## DFA Pro

Oxygen Delivery Systems & Components

### Oxygen Regulator Features

- Pressure gauge
  - Provides ability to monitor oxygen consumption
- Flow meter for constant flow feature
  - Provides adjustable flow rate (0.5 – 25 lpm)





## DFA Pro

Oxygen Delivery Systems & Components

### Hoses and Tubing

- Intermediate pressure hose (for demand valve or MTV)
- Clear plastic tubing (constant flow)

## DFA Pro

### Oxygen Delivery Systems & Components

#### Demand Inhalator Valve with Oronasal Mask

- With demand valve provides up to 95% Oxygen concentration
- Similar to scuba second stage
- Delivers oxygen upon inhaling
- Best option for breathing, responsive diver
- Oxygen delivery can reach 95% with good mask seal
- Clean after each use

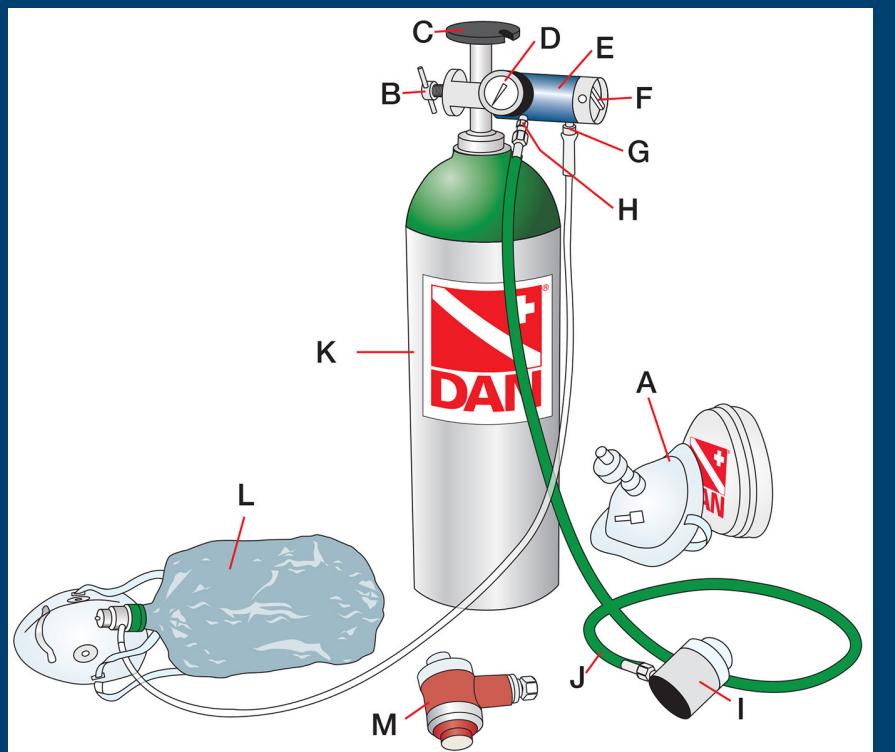


## DFA Pro

### Oxygen Delivery Systems & Components

#### Nonrebreather Mask

- Nonrebreather masks (uses constant flow function on regulator)
  - Variable oxygen delivery (up to 80% if mask seal is good)
  - Initial flow rate is 10-15 lpm
  - Contains 3 non-return valves and reservoir bag
- Use for unresponsive, breathing diver or when treating more than one injured diver
- Requires large supply of oxygen
- Second choice of delivery as concentration of oxygen delivered is lower
- Single use/disposable



**DFA Pro**  
**Oxygen Skills**

**SKILLS**

**Disassembly and Assembly  
of Oxygen Equipment**

**Demand Inhalator Valve**

**Nonrebreather Mask**



## DFA Pro

Cardiopulmonary Resuscitation (CPR)

**Cardiopulmonary Resuscitation (CPR)**

**Starting CPR: Supporting Circulation**

**Continuing CPR: Supporting Respiration**

**Use of AEDs During CPR**

**Foreign Body Airway Obstruction**



## DFA Pro

### Cardiopulmonary Resuscitation (CPR)

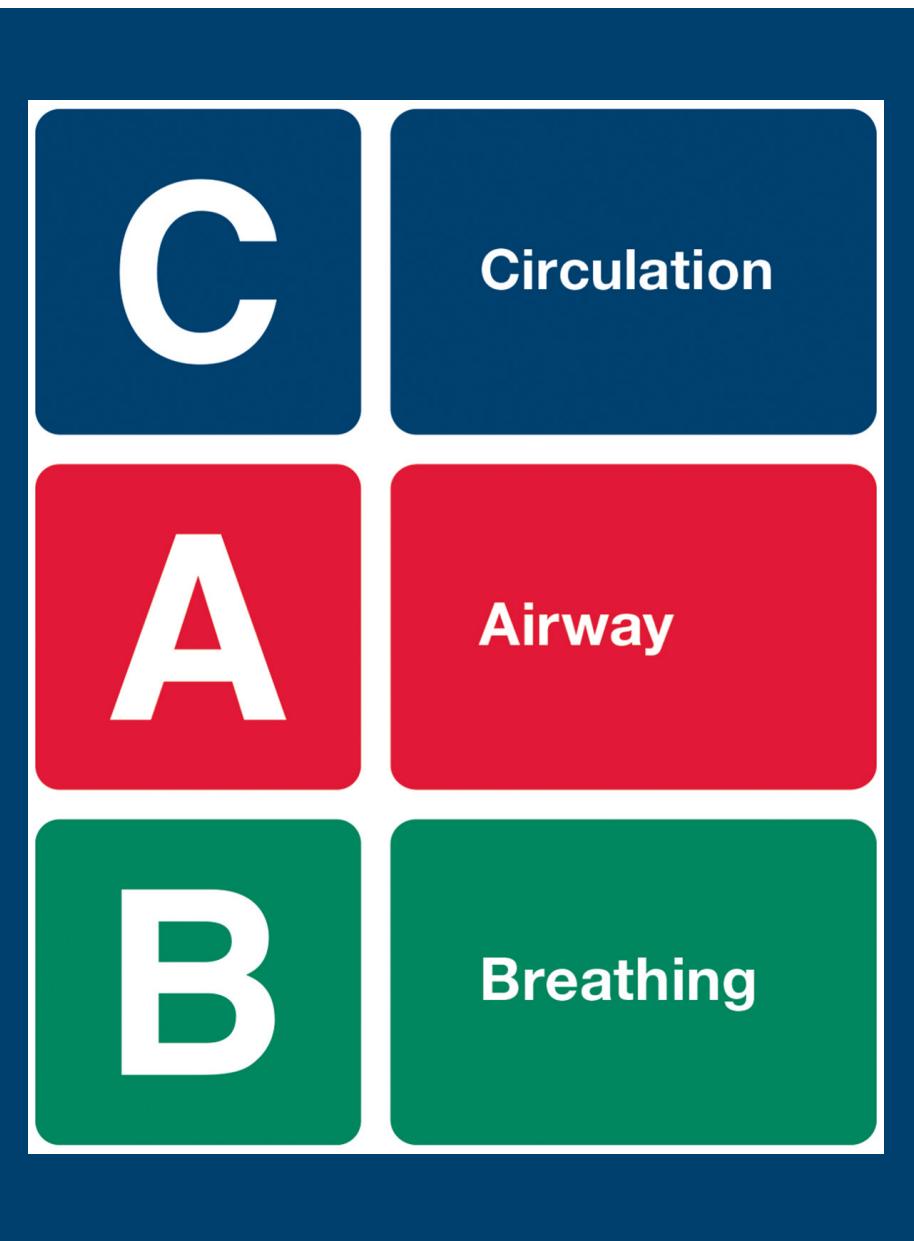
**CPR Goal – provide & maintain critical blood flow to vital organs**

- also ensure EMS has been activated

**4-6 minutes without oxygen, organs (especially the brain) may start dying**

**Chest compressions** take over heart function

**Rescue breaths** take over lung function



## DFA Pro

Cardiopulmonary Resuscitation (CPR)

### Key Steps in

### Cardio-Pulmonary Resuscitation

**Check for responsiveness**

- activate EMS

**Quickly check** for pulse and normal breathing

**Provide chest compressions** if not breathing normally

**Provide rescue breaths**



## DFA Pro

Cardiopulmonary Resuscitation (CPR)

### Precipitating Conditions and Special Circumstances

- Heart Attack
- Pregnancy
- Opioid Overdose
- Drowning
- Children



## DFA Pro

### Cardiopulmonary Resuscitation (CPR)

#### Heart Attack

Term used to describe symptoms associated with blockage of arteries supplying the heart

**Rescuer's role with unresponsive individuals** is to initiate CPR (use AED if available) and activate EMS

**Rescuer's role with a responsive individual** is supportive

- Assist to position of comfort
- Activate EMS
- Aid with medications if prescribed
  - nitroglycerine: every five minutes up to 3 doses

## DFA Pro

### Cardiopulmonary Resuscitation (CPR)

## Heart Attack Signs and Symptoms

- Heavy pressure or squeezing pain center of chest
- Shoulder, arm, neck or jaw pain
- Shortness of breath
- Sweating
- Nausea and vomiting
- Indigestion, heartburn
- Sense of impending doom





## DFA Pro

### Cardiopulmonary Resuscitation (CPR)

#### Special Circumstances with Resuscitation

##### Pregnancy

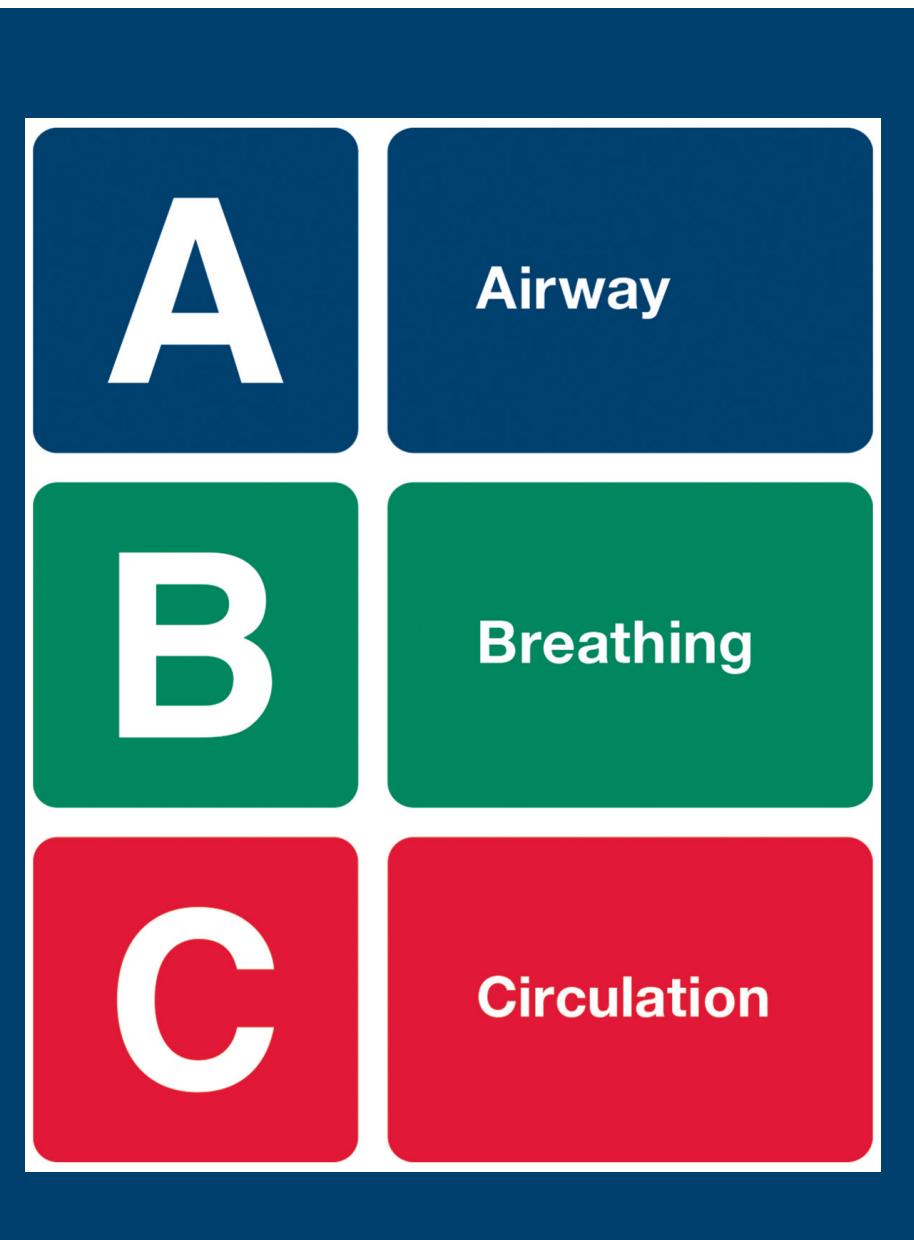
Effective compressions may require manual displacement of the uterus to her left  
Reduces pressure on returning blood flow

##### Opioid Overdose

Became the leading cause of death between 25-60 year-olds in 2012

Can lead to respiratory arrest and cardiac arrest

Treat with Naloxone – interferes with action of opioids



## DFA Pro

Cardiopulmonary Resuscitation (CPR)

### Drowning

Conduct CPR **beginning with rescue breaths** for 2 minutes before activating EMS

Use the **A-B-C protocol acronym** to guide CPR efforts when responding to a drowning or immersion incident

- Requires multifaceted medical interventions
- Transport to nearest medical facility



## DFA Pro

### Cardiopulmonary Resuscitation (CPR)

#### Children

Conduct CPR **beginning with compressions** for 2 minutes before activating EMS – if alone and unable to call EMS on a cellphone using your speaker

- Cardiac arrest usually due to respiratory arrest
- Prompt intervention may prevent cardiac arrest

## DFA Pro

Cardiopulmonary Resuscitation (CPR)

### Chain of Survival

#### Six Links

1. Activation of EMS
2. High-Quality CPR
3. Defibrillation
4. Advanced Resuscitation
5. Post-Cardiac Care
6. Recover



Activation of Emergency Response

High-Quality CPR

Defibrillation

Advanced Resuscitation

Post-Cardiac Arrest Care

## DFA Pro

Cardiopulmonary Resuscitation (CPR)

### Early Access

**Recognition** of a problem should be followed by rapid action

**Call for help *immediately*** after determining an adult is unresponsive

- For children, infants and drowning victims provide two minutes of CPR first - if alone

**The sooner EMS is called, the sooner advanced medical care is available**





Activation of Emergency Response    High-Quality CPR    Defibrillation    Advanced Resuscitation    Post-Cardiac Arrest Care    Recovery

## DFA Pro

Cardiopulmonary Resuscitation (CPR)

### Early CPR

#### Early and aggressive CPR

supports life until advanced care is available

**CPR keeps oxygenated blood circulating to the brain and heart**



## DFA Pro

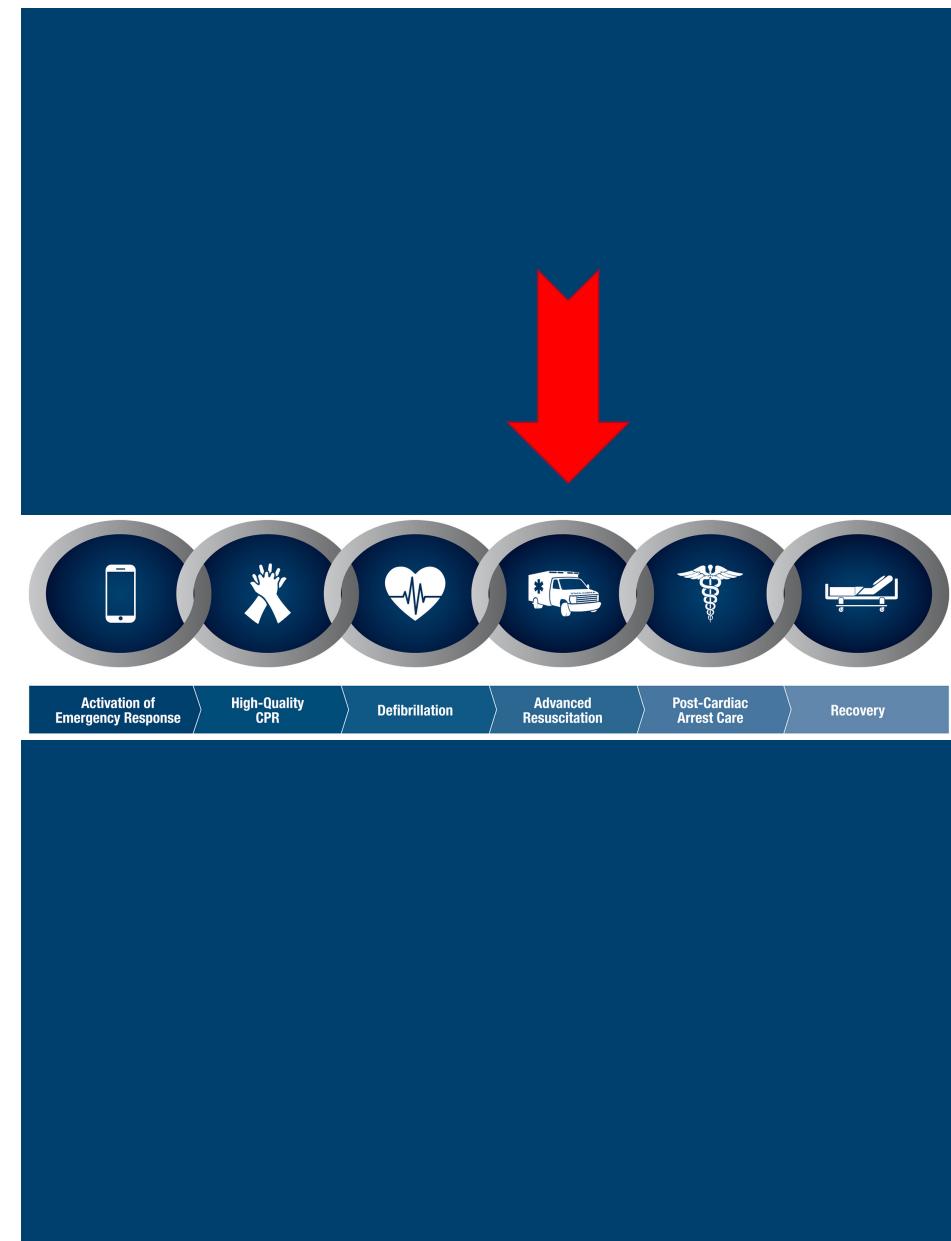
Cardiopulmonary Resuscitation (CPR)

### Rapid Defibrillation

**Sudden Cardiac Arrest (SCA)** is a leading killer of adults

**SCA often results** from abnormal heart rhythm called **Ventricular Fibrillation**, where the heart muscle quivers ineffectively

**Defibrillation** is the *single* most important intervention in cardiac arrest



## DFA Pro

Cardiopulmonary Resuscitation (CPR)

## Advanced Life Support

**Includes:**

**Advanced Airways**

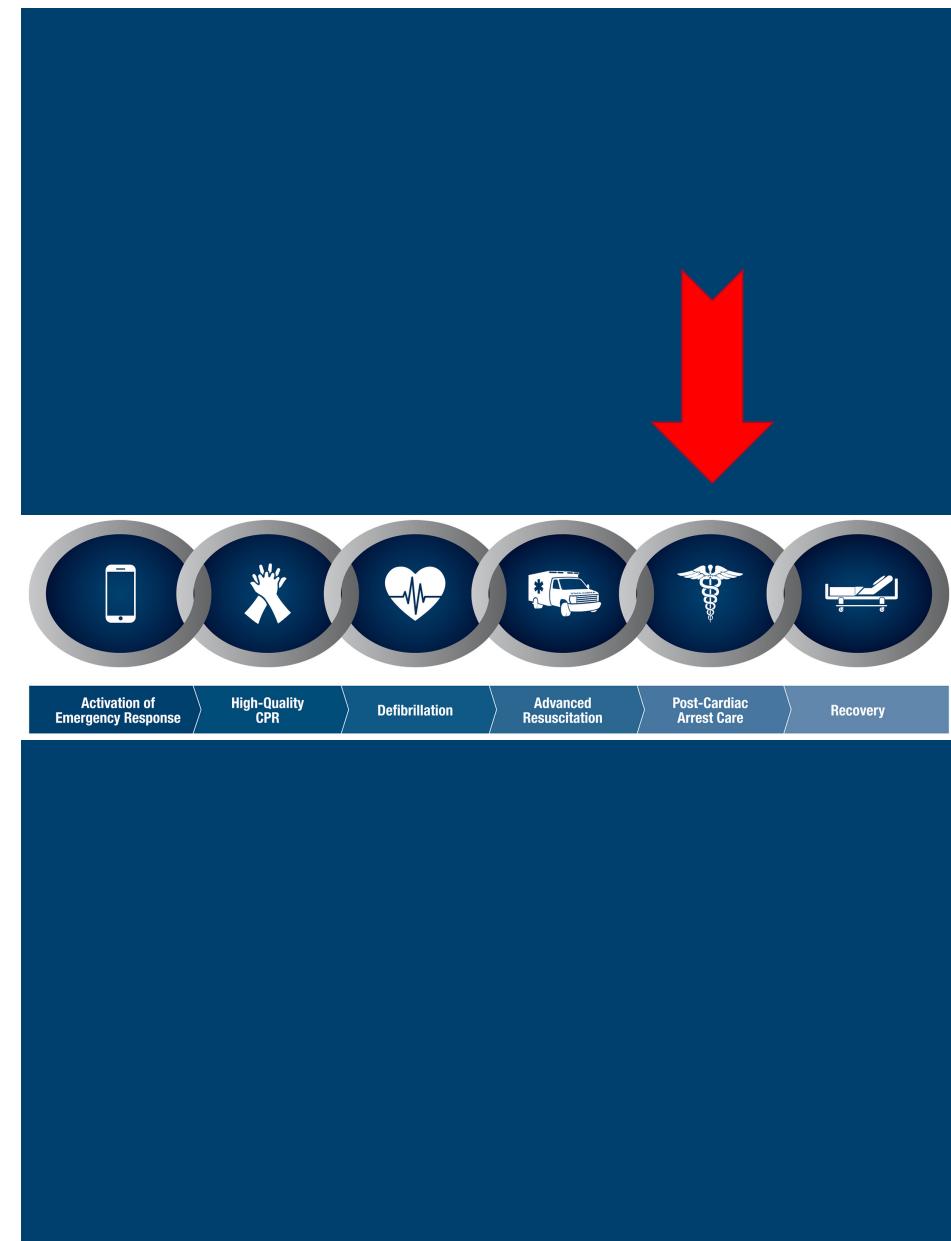
**IV Medications**

**Advanced Heart Monitoring**

**Stabilizes patient for transport to hospital**

**Good ALS care revolves around good BLS care!**





## DFA Pro

Cardiopulmonary Resuscitation (CPR)

## Post Cardiac-Arrest Care

**Involves:**

**Maintaining airway**

**Heart Monitoring**

**Hospital interventions to treat the underlying cause of the cardiac arrest**

## DFA Pro

### Cardiopulmonary Resuscitation (CPR)

## Recovery

- Recovering from a cardiac arrest is a long-term process.
- Includes mental and emotional well-being as well as support for the physical healing processes.
- This support begins while the survivor is still hospitalized but needs to continue after discharge to assure a return to normal social functioning.