DFA Pro

Supporting Circulation

Starting CPR - Adult

Call for help first
Bear the chest
Locate position for compressions by drawing imaginary line between nipples
Stack hands on each other in center of chest along imaginary line
Use heels of hands for compressions, fingers off chest wall
Position shoulders directly over hands with elbows locked
Pivot from hips keeping back and arms straight
Release compression pressure without losing contact with chest wall

DAN®

DFA Pro

Supporting Circulation

Starting CPR - Adult

Begin with *compressions* at a rate of 100 -120 compressions per minute

- compressions that are ***too fast*** do not allow the heart to adequately refill with blood
- Compressions that are ***too slow*** do not provide for adequate circulation

Compress to a *depth* of 5-6 cm (2 -2 ½ inches)

30 compressions, then 2 rescue breaths

DAN®

DFA Pro

Supporting Circulation

Two-Rescuer CPR – Adult

- **One rescuer is the “compressor”, one rescuer is the “ventilator”**
- **Continue with *compressions* at a rate of 100-120 compressions per minute**
- **Compress to a *depth* of 2-2 ½ inches/5-6 cm**
- **30 compressions, then pause compressions for 2 rescue breaths**
- **Switch roles every 2 minutes/5 cycles** to reduce rescuer fatigue and maintain effectiveness

DAN®

DFA Pro

Supporting Circulation

Starting CPR – Child

Children generally considered 1 year to puberty
consider size for compression effectiveness

If alone do 2 minutes of CPR then call EMS

Locate position for compressions the same as for adult

Use one *or* two hands in the center of the chest

Start with *compressions* at a rate of 100-120 compressions per minute

30 compressions, then 2 rescue breaths

Compress to a *depth* of *approximately*
2 inches/5 cm or 1/3 chest depth

DAN®

DFA Pro

Supporting Circulation

Two-Rescuer CPR – Child

As with Adult CPR, one rescuer is the "compressor", one rescuer is the "ventilator"

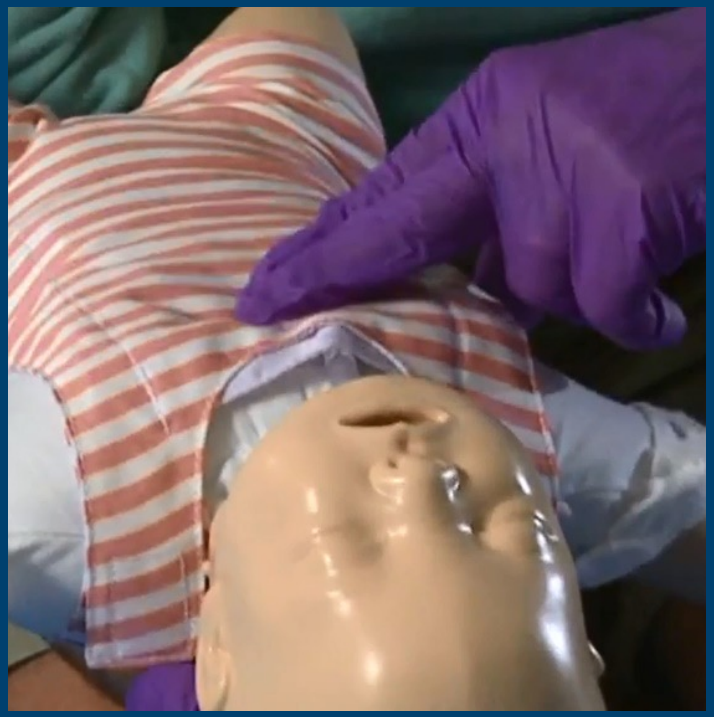
Continue *compressions* at a rate of 100-120 compressions per minute

Compress to *depth* of 2"(5 cm) or 1/3 depth of chest

Compression:Ventilation Ratio changes to 15:2

Switch roles every 10 cycles/2 minutes

DAN®



DFA Pro

Supporting Circulation

Starting CPR – Infant

Infants considered less than 1 year

If alone do 2 minutes of CPR then call EMS

Locate compression site by drawing imaginary line between nipples

Use 2-3 fingers in center of chest

Compress to a *depth* of 1/3 chest depth

Start with *compressions* at a rate of 100-120 compressions per minute

30 compressions, then 2 rescue breaths

DAN®

DFA Pro

Supporting Circulation

Two-Rescuer CPR – Infant

As with Adult CPR, one rescuer is the "compressor", one rescuer is the "ventilator"

Continue *compressions* at a rate of 100-120 compressions per minute

Compress to a *depth* of 1/3 chest depth

Compression:Ventilation Ratio changes to 15:2

Switch roles every 10 cycles/2 minutes

DAN®

DFA Pro

Supporting Circulation

SKILL

Chest Compressions

- Adult
- Child
- Infant

DAN®

DFA Pro

Supporting Respiration

Critical Steps for Rescue Breathing

ADULTS:

Use head-tilt-chin-lift to open airway

Create seal with barrier device
(or mouth to mouth directly on person's face while pinching nose closed)

Rescue breaths should be sufficient for gentle chest rise-and-fall, no more

- **1 second breath**
- **1 second for exhale**
- **1 second for next breath**

If ventilations do not go in, reposition head and try again

DAN®

DFA Pro

Supporting Respiration

Rescue Breathing for Children

Same technique as for adults

Use head-tilt-chin-lift to open airway

Create seal with barrier device (or mouth to mouth directly on child's face while pinching nose closed)

Adjust ventilation volume for smaller lung capacity; should be sufficient for gentle chest rise-and-fall, no more

- **1 second breath**
- **1 second for exhale**
- **1 second for next breath**

DAN®

DFA Pro

Supporting Respiration

Rescue Breathing for Infants

Use less extension on head-tilt-chin-lift to open airway

Create seal with barrier device

- Turn oronasal mask 180°

OR cover mouth ***and*** nose with your mouth to ventilate

Only use puffs of air for ventilation

volume should be sufficient for gentle chest rise-and-fall, no more

DAN®

DFA Pro

Supporting Respiration

Compression : Ventilation Ratios

Person	One Rescuer	Two Rescuers	How to Compress	Depth
Adult	30:2 ratio	30:2 ratio	Two hands stacked	5-6 cm (2-2 1/2 inches)
Child	30:2 ratio	15:2 ratio	Heel of one hand or two hands stacked	5 cm (2 inches) or 1/3 chest depth)
Infant	30:2 ratio	15:2 ratio	Two or three fingers (1 rescuer); two thumbs (2 rescuers)	3.5 cm (1 1/2 inches) or 1/3 chest depth)

NOTE: The rate of compressions for all age groups is 100-120 per minute.

DAN®

DFA Pro

Supporting Respiration

Rescue Breathing without Compressions

If a pulse is present but the individual is not breathing

- Open airway
- Provide a single rescue breath (all ages)
- Continue with a breath every 5-6 seconds for adults
  - For infants every 3-5 seconds
- Continue to monitor pulse every two minutes
- Be prepared to initiate full CPR

DAN®

DFA Pro

Supporting Respiration

Use of Oxygen

Supplemental oxygen **improves tissue oxygenation** during resuscitation after immersion incidents

Important for **victims of drowning or scuba diving** accidents

DAN®

DFA Pro

Supporting Respiration

Delivery Devices for Non-breathing Divers

Bag Valve Mask

- Delivers rescue breaths by squeezing a ventilation bag
- Can be used with room air or oxygen
- Requires **two** rescuers for effective use
- Avoid over ventilation
- Single use/disposable

DAN®

DFA Pro

Supporting Respiration

Delivery Devices for Non-breathing Divers

Manually triggered ventilator

- Delivers rescue breaths by activating a button similar to a scuba regulator purge button
- Can function as a demand valve
- Requires two rescuers for effective use
- Avoid over-ventilation
- Clean after each use

DFA Pro

Cardiopulmonary Resuscitation (CPR)

Full CPR

- Always recommended for immersion incidents
- Until additional help arrives
- Until an AED arrives, and shock is advised
- Immediately after shock is delivered
- After no-shock advisory and the person isn't breathing or moving
- If the AED fails

DAN®

DFA Pro

Supporting Circulation

SKILLS

Rescue Breathing

Bag Valve Mask (BVM)

Manually Triggered Ventilator (MTV)

Full CPR

DFA Pro

Use of AEDs During CPR

Use of Automated External Defibrillators

The heart has a natural electrical system

- Electrical impulse *should* generate a heart contraction
- Contraction pumps blood to the body

Most common abnormality during cardiac arrest is in the ventricular fibrillation

- Contractions stop therefore circulation stops

The solution for *fibrillation* is . . .

defibrillation

DAN®

DFA Pro

Use of AEDs During CPR

Use of Automated External Defibrillators continued

Defibrillation generates a large shock to reset the electrical system

- Assists in re-establishing a normal heart rhythm

AEDs universally provide audible user prompts

CPR in conjunction with early defibrillation provides the highest rate of survival from SCA

Each minute defibrillation is delayed reduces survival rate 7-10%

Resume CPR immediately after delivering an AED shock

DAN®

DFA Pro

Use of AEDs During CPR

AED Pad Placement

Follow illustrations on pads

One pad on right side

- Below clavicle (collar bone)

One pad on left side

- Under person's arm
- Wrapping their side

Pads will still work if positions are switched

(as illustrated in photo)

DAN®

DFA Pro

Use of AEDs During CPR

Children and Infants

AED Use on Children

- Use pediatric pads if available
- Place pads same as for an adult

AED Use on Infants

- Use pediatric pads if available
- Place pads in center of chest and back

DAN®

DFA Pro

Use of AEDs During CPR

Cautions

- Do not use in standing water
- Discontinue use of oxygen and move it away from the individual

Troubleshooting

- Pad placement/attachment most frequent problem
  - Follow illustrations on pads then assure firm attachment
- Removing moisture or shaving off chest hair may be required

Maintenance

- Check AED status indicator
  - Replace battery if required
- Replace expired pads

DAN®

DFA Pro

Use of AEDs During CPR

SKILL

Using an Automatic External Defibrillator

DAN®

DFA Pro

Foreign Body Airway Obstruction (FBAO)

Choking

Most common **obstruction in adults is food**

Partial obstructions (the person can speak and/or cough) do not require active intervention

Complete obstructions (the person cannot speak, breath, or cough) require rapid assistance

Ask if the person can speak -

If not, ask permission before delivering abdominal thrusts

If the person **becomes unconscious,** call for help and *start CPR*

Finger sweep should only be used when obstruction can be seen

DAN

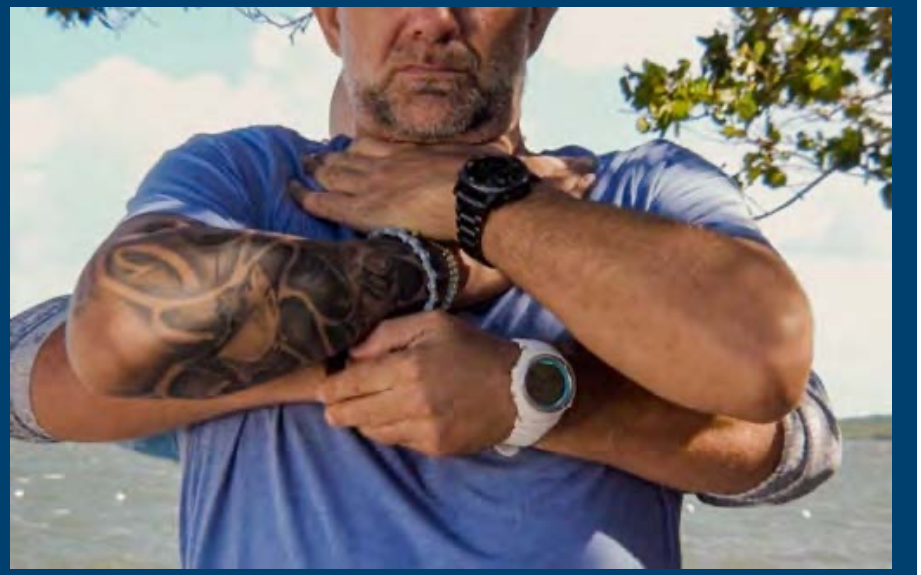
DFA Pro

Foreign Body Airway Obstruction (FBAO)

Abdominal Thrusts

- Stand behind the person
- Put both arms around the abdomen
- Clench your fist, place it, thumb in, just above the navel
- Grasp your fist with the other hand
- Pull sharply inward and upward – firmly
- Repeat until the object is expelled, or the person loses consciousness

DAN®



DFA Pro

Foreign Body Airway Obstruction (FBAO)

Chest Thrusts

- Stand behind the person encircling their chest
- Place your arms directly under their armpits
- Clench your fist, place it, thumb in, in the middle of the sternum
- Grasp your fist with the other hand
- Deliver 5 quick forceful thrusts
- Repeat until the object is expelled, or the person loses consciousness

DAN®

DFA Pro

Foreign Body Airway Obstruction (FBAO)

Back Blows

- Stand to the side and slightly behind the victim
- Support the chest with one arm/hand and lean the victim forward
- Give up to 5 sharp blows between the shoulder blades with the heel of your other hand
- Repeat until the object is expelled, or the person loses consciousness

DAN®

DFA Pro

Foreign Body Airway Obstruction (FBAO)

Continue applying FBAO techniques until the obstruction is relieved. Rotating techniques is acceptable.

If the person at any time becomes unconscious:

- Carefully lower the individual to the ground.
- Activate EMS.
- Begin CPR (chest compressions followed by rescue breaths).
- Look in the mouth for the obstruction before each pair of breaths. Use a finger sweep to remove any visible objects.

DAN®

DFA Pro

Foreign Body Airway Obstruction (FBAO)

Choking – Infants

Infants explore with their mouths,

- aspiration of small objects very real concern.

Back Blows/Chest Thrusts

- Place infant's head face down along your forearm, support the head in your hand.
  - Keep head lower than the body
- ***Deliver five back blows between infant's shoulder blades.***
- *Immediately turn infant over, deliver **5 chest compressions.***
  - ***Maintain support of head***

Repeat until foreign body is removed, and infant begins breathing on own.

DFA Pro

Foreign Body Airway Obstruction (FBAO)

Choking – Infants

Infants explore with their mouths,

- aspiration of small objects very real concern.

Back Blows/Chest Thrusts

- Place infant's head face down along your forearm, support the head in your hand.
  - Keep head lower than the body
- ***Deliver five back blows between infant's shoulder blades.***
- *Immediately turn infant over, deliver **5 chest compressions.***
  - ***Maintain support of head***

Repeat until foreign body is removed, and infant begins breathing on own.

DFA Pro

Foreign Body Airway Obstruction (FBAO)

Suctioning

Can aid in clearing the airway when vomiting occurs

Open the airway with a cross-finger scissor technique

Adults (use manual vacuum pump)

- **Limit suctioning to no more than 15 seconds**

Child (use manual vacuum pump)

- **Limit suctioning to no more than 10 seconds**

Infant (use bulb syringe)

- **Limit suctioning to no more than 5 seconds**

DAN®

DFA Pro

Foreign Body Airway Obstruction (FBAO)

Skills

Foreign-Body Airway Obstruction

Suctioning