St John Ambulance Australia

Skills Maintenance and Re-examination Programme 1989

NAME .....

SIGNATURE .....

DIVISION .....

DATE .....

St John Ambulance Australia

SKILLS MAINTENANCE AND RE-EXAMINATION PROGRAMME 1989

Contents

Remarks

I commend this national 1989 Skills Maintenance and Re-Examination programme to St John members and invite suggestions and comments at training activities and/or in writing. The latter should be addressed to the Victorian District Training Committee, Skills Maintenance, St John Ambulance, 285 La Trobe Street, Melbourne, to whom thanks are due for the preparation of this programme.

Our objective is that as you work through this programme, you will be able to revise previous skills, and develop new skills in patient care to a standard level which will be obtained throughout St John Ambulance.

All the best for the year's work.

Dr B.E.J. Ancell
Chief Surgeon

Introduction

The 1989 Skills Maintenance and Re-Examination Programme adopts and expands the innovative training concepts developed in the previous programme.

The expanded approach relates to the combined application of patient care in the home and first aid theory and practical skills to a series of practical incidents, which incorporate the use of the St John Casualty Report Form.

Distribution of the Programme including the training packages will be effected via:—

Districts	—	District Surgeons in each State
Regions	—	Corps Superintendents for Regional Staff
Corps	—	Corps Superintendents for Corps Staff
Divisions	—	Divisional Superintendents for Divisional Members

Procedure

(A) St John members

1 Each member will receive their own copy of the Programme. The front cover of the Programme will be signed and dated on receipt.

2 Members will sign the Officer-in-Charge master issue sheet (SMP 2899).

3 The programme is divided into two (2) sections (sections A and B). Each section consists of theory and practical skills modules.

All the practical skills modules pertaining to the section must be practised and when mastery level is obtained, signed, before the practical incident pertaining to the complete section can be attempted.

Note
'AFA' refers to *Australian First Aid* SJAA 1984.
'CSH' refers to *the Care of the Sick in the Home* SJAA 1981

'CSH' refers to *The Care of the Sick in the Home* SJAA 1981

4 When all the practical skills modules for the section have been completed (Mastery level reached), the person responsible for your training will issue you with a White Briefing Sheet and a Part-Completed White Casualty Report Form.

These sheets will contain the following:—

— History of the incident
— Name of patient
— Address of patient
— Time
— Complaint of patient

5 Using the history stated on the Briefing and Casualty Report Form, the practical incident will be staged and you will treat the patient/s accordingly.

6 On completion of the incident, you will record your management under the appropriate treatment heading listed on the Casualty Report Form.

7 An overall training session on the incident will be conducted by the person responsible for training, and you will be able to check and record treatment in line with the Casualty Report Form Answer Sheet. Access to this Answer Sheet is via Training Personnel. This sheet will not be issued to members.

At the end of each section, a page headed "Management Notes" is provided for recording purposes during workshop segment.

8 The section, when satisfactorily completed, as per the training programme and Casualty Report Form Answer Sheet, will be signed and dated by the responsible person.

9 You cannot attempt the section practical incident until all the practical skills modules pertaining to that section have been signed as satisfactory.

(B) Officers/Training Personnel

1 Unless exempted under General Regulations, all Officers/Members of St John shall complete the Skills Maintenance and Re-Examination Programme to the standard prescribed.

2 The term "Training Personnel" refers to all Officers and/or a St John member so designated to a training function. If professional training personnel are unavailable within divisions, then the Officer-In-Charge should communicate the name, qualifications, etc. of a nominee to fill the role to the District Surgeon for consideration. All such requests will receive written advice.

3 All Officers and/or designated training personnel are responsible and accountable for the modules of the training programme they have signed as being satisfactorily completed.

4 Practical skills items pertaining to the module being undertaken must be signed as satisfactory before the relevant section practical incident can be attempted.

5 The section practical incident will not be undertaken and assessed on the same day/night on which the relevant practical skills modules have been taught.

6 If, on conclusion of the section practical incident Training Module, the member is found to be unsatisfactory, then further training will be given, and another date and time for the assessment will be arranged.

7 On satisfactory completion of the section practical incident, sign and date the programme in the space provided at the end of the relevant section.

This programme belongs to all Officers and Members of St John and its success depends on all of us working as a team. Your help, assistance and valued comments are always appreciated.

Programme application — summary training personnel

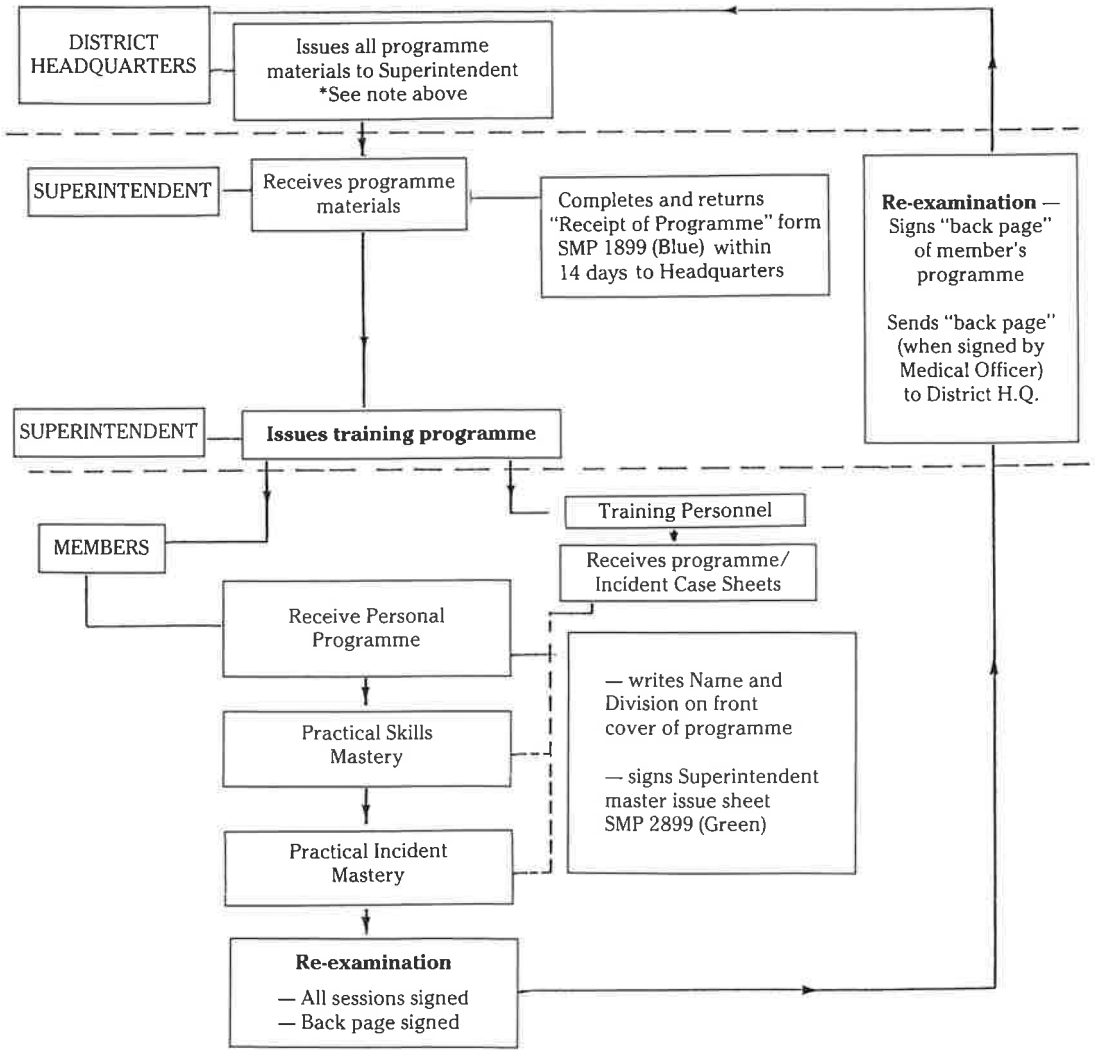
Action	Comments
1 Select one section of the programme	— Can select/start at any section
2 Practical skills pertaining to section modules are taught and assessed	— Spread evenly over the training period — Sign and date each practical skills module pertaining to the section when members reach a satisfactory standard as per the programme.
3 Issue the White Briefing for Practical Incident Sheet and the White Practical Incident Casualty Report Form (without treatment)	— Practical Incident Casualty Report Forms are marked section A and B to match the particular section being undertaken. **Note:** — DO NOT issue section Practical Incident Casualty Report Form to members: ** On same day/night that the module practical skills for that section have been assessed. ** If the module practical skills for the section have not been satisfactorily completed.
4 Stage the incident	— Members complete treatment details on the Practical Incident Casualty Report Form.
5 On completion of the Incident, Training personnel will conduct a workshop segment on the Practical Incident	— Use Practical Incident Casualty Report Form Answer sheet (pink) supplied (these are marked section A and B to match the particular section being undertaken). DO NOT issue this pink sheet. — During training workshop, ensure

members consult their own Casualty Report form and compare same with Casualty Report Form Answer sheet.

- Space is provided within the programme (headed 'Treatment Notes') for members to use during workshop segment.
- If practical incident has been completed to the satisfactory performance standard, then sign and date the particular section of the members programme.
- If unsatisfactory, repeat incident.
- DO NOT proceed to the next section until the member has satisfactorily completed the section in hand.

*__Note:__ Diagram illustrates procedure for all **Divisional Superintendents, Region Staff and Corps Superintendents**. Please follow the same procedure for your respective staff.

Programme administration — flow diagram



Annual re-examination

a *Re-examination based on this programme will be held to comply with General Regulations 9.9 (i) and should NOT be conducted on same night as Annual Inspection.*

b Your training programme which you will keep in your possession and complete as the year progresses, must have all modules (skills and practical incidents) marked as satisfactory before the night of your re-examination.

c The confirmation of completion of programme modules (back page) must be signed by you and your Superintendent prior to the re-examination.

d On the night of your re-examination, the Medical Officer will firstly examine your Training Programme. If completed and satisfactory, you will then be asked to complete a practical incident incorporating skills selected at random from your Training Programme. *C.P.R. may also be included each year.*
This is a spot test to satisfy the Medical Officer that you have reached the required standard in practical skills application. Also, it is a check that those responsible for signing your programme have insisted on the appropriate standard being met.

e The Medical Officer will then sign the confirmation of completion of re-examination section (back page) and this page will then be forwarded to District Headquarters by your Superintendent.

f To meet the Operations Branch efficiency requirements for 1988, you *must* have your Training Programme *completed before* the night of the re-examination. Members on 'reserve', Cadet Officers and Senior Cadets must also meet these requirements.

g This is the only method of re-examination acceptable for 1989. No other examination will be accepted, e.g. St John Ambulance First Aid Class examinations.

Note: This programme covers January 1989 — December 1989.

Responsibility for training programme

It is each individual member's responsibility to keep his/her own Programme up to date, have it signed as appropriate and present it at the annual re-examination.

A lost or misplaced Programme will result in your having to *re-start* a new Training Programme.

DISTRICT SURGEONS — AUSTRALIA
JANUARY 1989

S E C T I O N A

SECTION A
MODULE 1

Anatomy and physiology

OBJECTIVE On completion of the training period and after studying the material listed below, the St John member will be able to complete the questionnaire following and apply the knowledge to the Section's Practical Incident.

Applied anatomy

It is important to know anatomy to understand what internal injuries may occur with any particular external trauma.

For instance, if a patient has a serious fracture to the elbow, it is possible that the large artery and nerve near the elbow may also be damaged.

The skeleton

The skeleton gives the body its shape, and allows the body to move through muscle action.

White and red blood cells are produced in the bone marrow.

The skull, rib cage and pelvis protect vital soft organs, e.g. the brain, heart, etc.

See diagram 1, 2 and 3 over next page.

Skeletal system

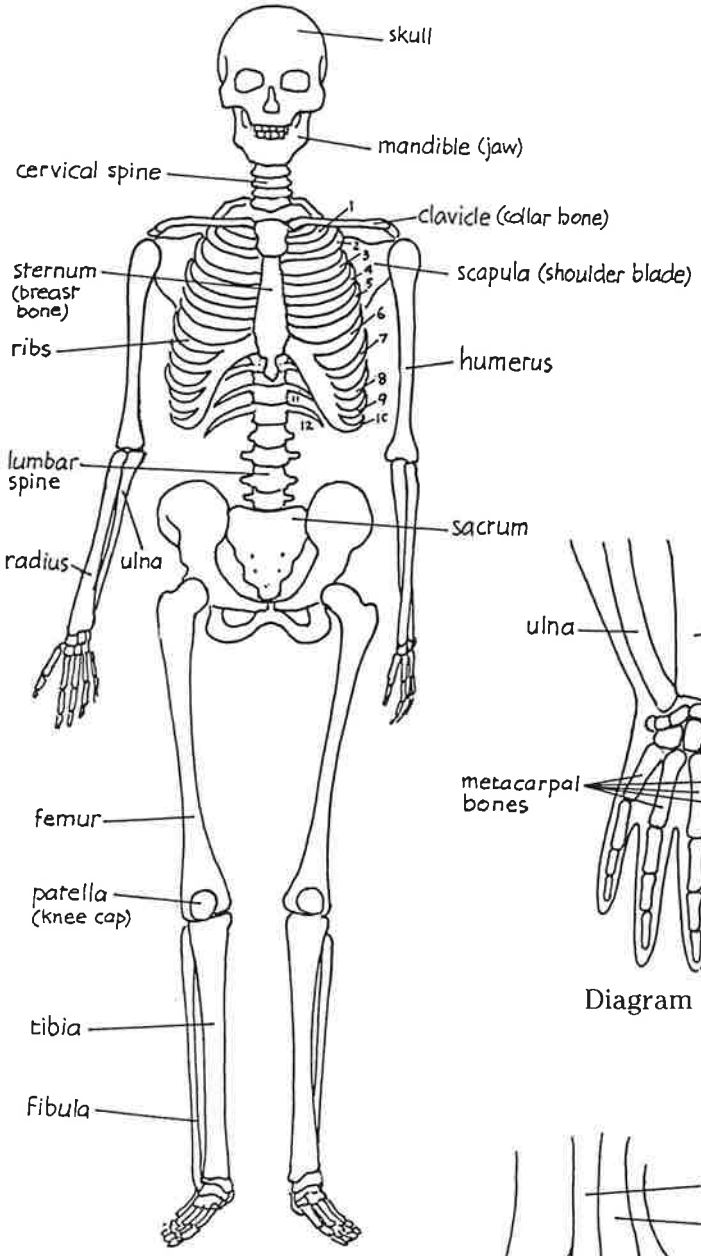


Diagram 1 Skeletal system

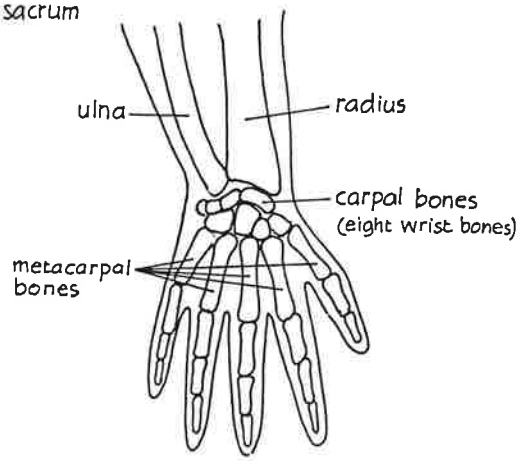


Diagram 2 Hand and wrist

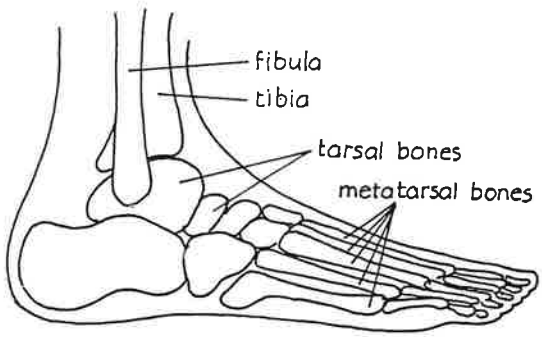


Diagram 3 Foot and ankle

The respiratory system

The mouth, nose, trachea, lungs, ribs, sternum and diaphragm form the respiratory system.

As air is drawn in through the mouth and nose it is warmed and filtered. The air passes down the windpipe (trachea) to the lungs, where oxygen is transferred into the blood stream and to the heart. Carbon dioxide passes from the blood into the lungs and then out into the air as we breathe out.

Refer diagram 2.1, p.23 AFA

The mechanics of breathing

The muscles between the ribs pull the rib cage out, and this pushes down the diaphragm and makes the lungs larger. Air is then sucked into the lungs to fill up this extra space.

When the rib cage becomes smaller and the diaphragm rises, air is pushed out of the lungs and breathed out.

Refer diagrams 2.2 & 2.3, p.24 AFA and diagrams 4 and 5 below.

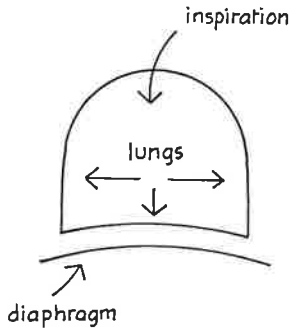


Diagram 4 Inspiration

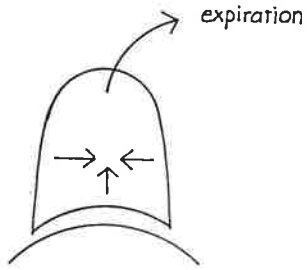


Diagram 5 Expiration

Circulatory system

The arteries, veins, capillaries and the heart make up the circulatory system. The circulatory system carries blood to all parts of the body. The arteries carry blood which is rich in oxygen, sugar, vitamins and other nutrients, and the veins carry away waste products.

The heart

Refer diagram 2.4, p.25 AFA and diagrams 6 and 7 below.

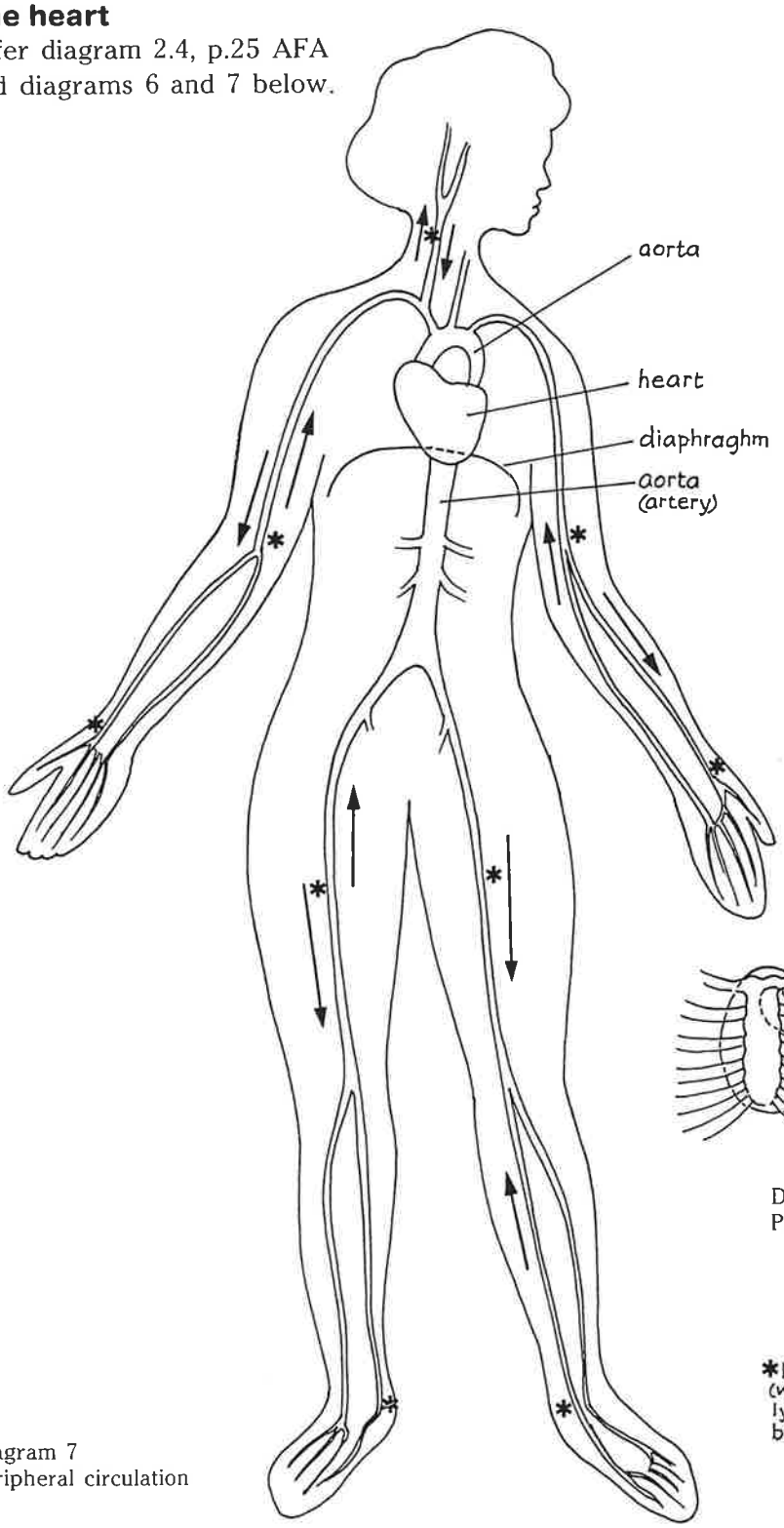


Diagram 6
Position of heart

Diagram 7
Peripheral circulation

Nervous system

The brain, spinal cord and nerves make up the nervous system.

The nervous system receives information about everything happening inside or outside the body — heat or cold, pain, hunger, feeling — and controls every part of the body.

The brain is in the skull; the spinal cord passes down the vertebrae, and the nerves go to all parts of the body — usually alongside arteries and veins.

See diagrams 8, 9 and 10 below.

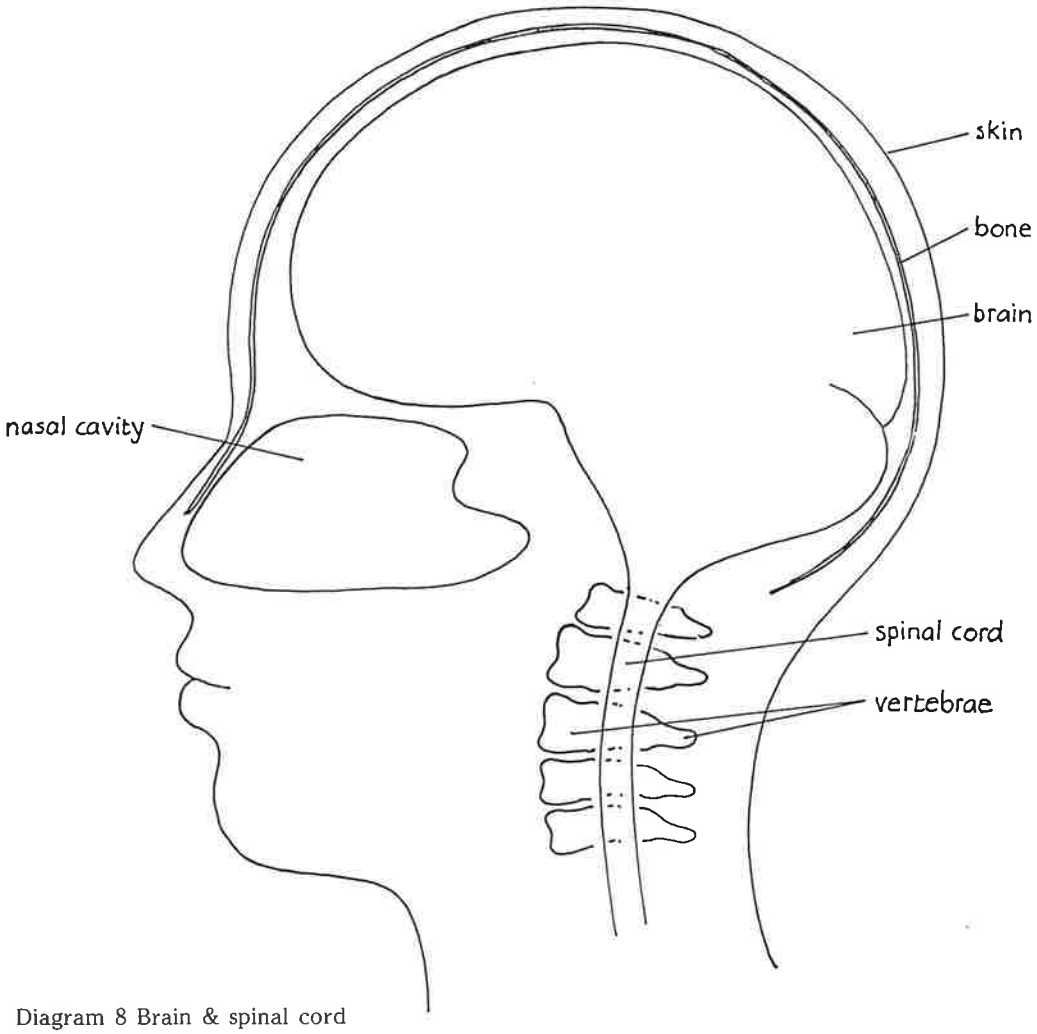


Diagram 8 Brain & spinal cord

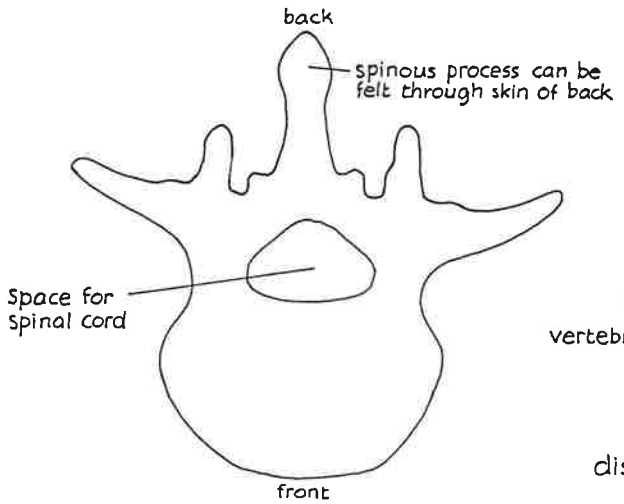


Diagram 9
A Vertebrae from above

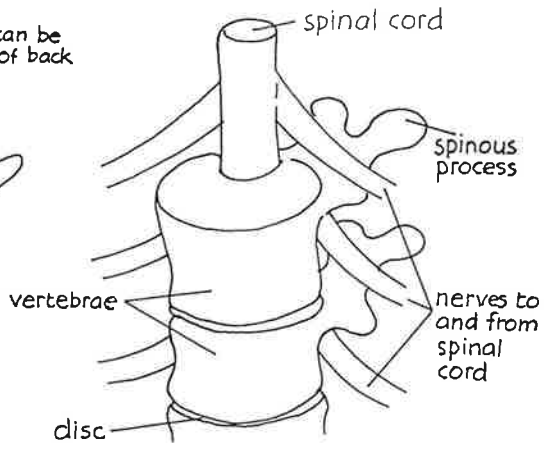


Diagram 10
Spinal cord & vertebrae

Digestive system

The digestive tract and its associated organs take in food and process it into a form that the body can use. It then expels unwanted materials as faeces.

The digestive system consists of tubes and organs which aid digestion, these include:

— mouth and tongue
— oesophagus (gullet)
— stomach
— small and large intestine.

Organs

The *pancreas* produces hormones which help the food to be broken up.

The *liver* and *gall bladder* deal with fatty foods and a lot of poisonous material in the food.

The *spleen* is not part of the digestive system even though it is next to the stomach. The spleen is involved in the production and destruction of red and white blood cells.

Refer diagrams 2–12 p.34 AFA and diagrams 11, 12 and 13 below.

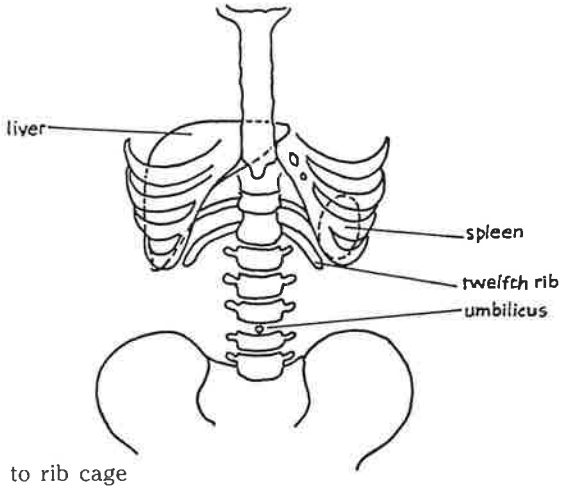


Diagram 11
Liver & spleen in relation to rib cage

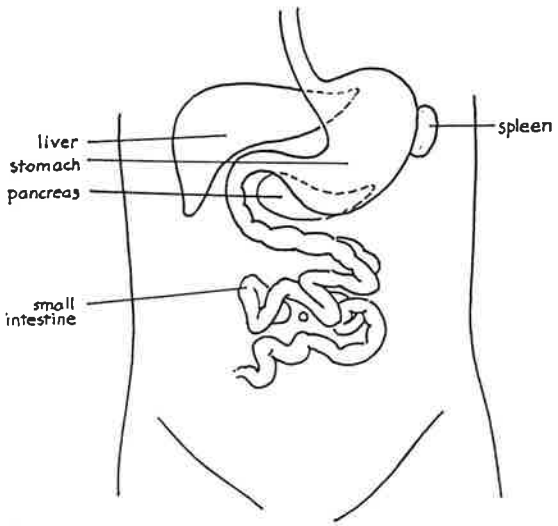


Diagram 12
The digestive system in the abdomen

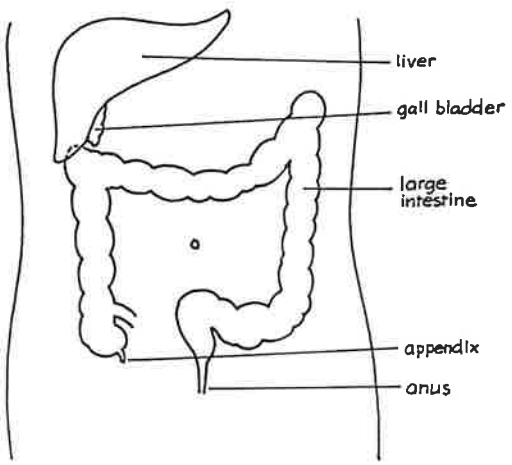


Diagram 13

Urinary system

All blood passes through the kidneys, and the *kidneys* filter out excess water and some waste products. This fluid passes down the *ureters* to the *bladder* and then down the *urethra* as urine.

This is the urinary system. Refer diagrams 14 and 15.

In women, the uterus and ovaries are behind and to the side of the bladder.

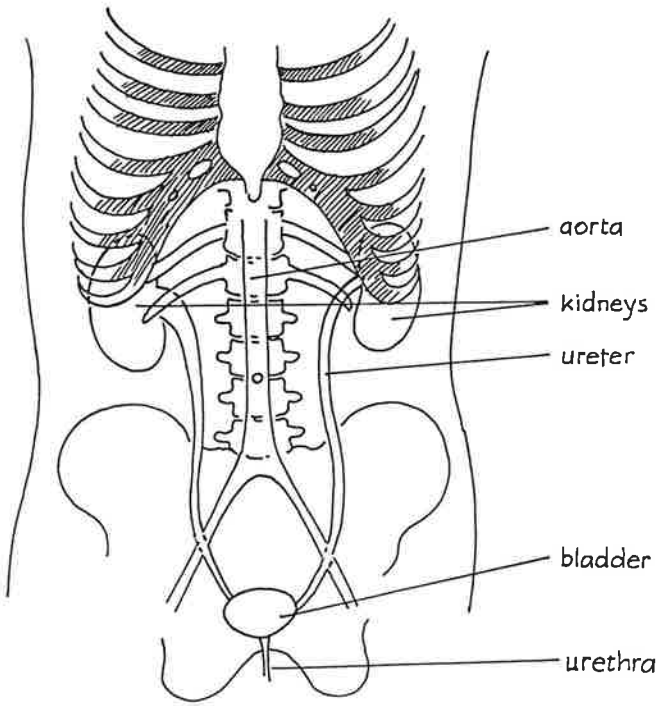


Diagram 14 Urinary system

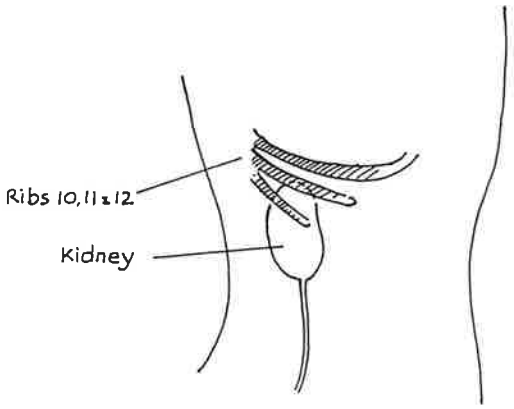


Diagram 15
The kidney in relation to the rib cage

Questionnaire

ANATOMY AND PHYSIOLOGY

1 A man — not wearing a seat-belt — crashes his car and is pushed against the steering wheel. He has a lot of pain directly over the middle of his sternum.

What other organs/structures may have been damaged?
What symptoms and signs might there be?

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2 A female wrestler comes to the first aid room, looking very pale and with a pulse of 130/min. She has a bruise on her right flank, just below the rib cage.

What may be the problem? What would you do?

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3 What is the first aid management of a fracture of the carpal bones?

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4 Where is: — the clavicle? — the sacrum?
— the 1st metatarsal? — the fibula?

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SECTION A
MODULE 2

Emergency childbirth

OBJECTIVE On completion of the training period and after practising the practical skill listed below (to the satisfactory performance level as per the module check-list) the St John member will be able to apply the skills to the section's practical incident:—

Practical skill

2.1 Management of emergency childbirth

Pre-requisite:

Read Chapter 26 *Australian First Aid*
View Emergency Childbirth Film/Video

Preparation:

Stores:— Film/Video *Emergency Childbirth*
A Doll (demonstration purposes)
A Manikin as patient.
Childbirth stores as stated pp. AFA 350–351

Reference:

Australian First Aid — Pages 349–359.

Check-list	Tick

Position patient

— Lie mother on prepared bed either on her back, side or position of comfort.
(Note diagram AFA p.352)

— Knees are drawn up and apart.

— Place a drape/sheet over lower part of mother.

— Maintain privacy.

Prepare for delivery

— First aider dons mask or clean handkerchief (if available).

— Washes hands thoroughly.

— Dons gloves (if available). (Note: Protect yourself if possible from blood products at all times.)

Prepare mother

— Swab genital area thoroughly with diluted antiseptic solution. (Note: If no diluted solution, use cooled boiled water.)

Delivery of head

— Control head with one hand. (Note: page 353 AFA.)

— With other hand place a clean pad over anal area.

— Await turning of head to either left or right side.

— Feel for cord; if around the neck, free it by slipping it over head. (Diagram page 354 AFA.) (Note: If cord really tight first aider will have to tie off cord securely in two places and cut between ties.)

Delivery of shoulder

— Place hands on either side of baby's head, over ears, with fingers pointing to chin.

— Guide head slowly downward.

— Observe for delivery of upper shoulder. (Note: Sometimes mother will have to be instructed to give a slight push to aid delivery of upper shoulder.)

Check-list	Tick
Delivery of body	
— Guide head upward to help deliver lower shoulder.	
— Grasp baby under armpits.	
— Slowly lift baby up towards mother. (Note: Do not hold or squeeze baby's abdominal area. Also be aware a newborn baby is wet and slippery.)	
— Note time of delivery (mentally), record later. (Birth records require time and date.)	
Care of baby	
— Place head low to drain secretions.	
— Dry and cover baby in warm towels quickly.	
Tie the cord	
— Place first sterile tie approx. 10cm from baby's navel area.	
— Second 15cm away from navel area.	
— Third 20cm away. DO NOT PULL ON CORD.	
— If warranted cut the cord between the two ties furthermost from the baby, with sterile scissors.	
— Give babe to mother.	
— Observe and cover cord stump.	
Delivery of placenta	
— Mother remains on her back, with legs apart.	
— Await patiently for delivery of placenta (approx. 10–30 minutes).	
— Place placenta in plastic bag.	
— Note time of delivery (mentally), record details later. (Note: Placenta is always transported with mother, relevant details attached.)	
Care of the mother	
— Place a sanitary pad/towel in position.	
— Wash mother if time permits or, if not, sponge face, hands and genital area.	

Check-list	Tick
— Give a drink. — Encourage her to rest or sleep. — Check her pulse and respiration rates. — Check blood loss. — Record observations and retain sanitary pads for medical inspection. * Note: if blood loss excessive firmly but gently massage above the womb (uterus) which will be felt at the level of the navel. Also, putting baby to breast helps contract uterus.	

Practical skill mastered

Signed: .....

Date: .....

SECTION A
MODULE 3

Cardiopulmonary resuscitation

OBJECTIVE On completion of the training period and after practising the practical skill listed below (to the satisfactory performance level as per the module check-list) the St John member will be able to apply the skill to the section's practical incident:—

Practical skill

3.1 Perform effective cardiopulmonary resuscitation for an adult.

Prescribed references:

Australian First Aid (AFA)
Australian Resuscitation Council — Policy Statements (PS)

Incident:

You are attending a private function when you see a middle aged person collapse. Examine the patient and treat accordingly. (Manikin must be used.)

3.1
CARDIOPULMONARY RESUSCITATION
Single operator — adult

Check-list	Tick

Dangers

LOOK AROUND AND LISTEN FOR HAZARDS
If the patient is in a hazardous location he/she should be moved or the hazard removed before continuing.

(NO DANGERS)

YELL FOR HELP

Response

Assess response to:
Verbal command e.g. Can you hear me?
Open your eyes?
What is your name? AFA p.5

Kneel beside patient's shoulders. AFA p.5

Shake — by grasping the patient's shoulders.

(NO RESPONSE)

Quickly turn the patient away from you onto the side AFA p.44

Place the farther arm at right angles to the body.

Place the nearer arm across the chest.

Bend the nearer knee to bring the thigh at right angles to the hip.

Place your hand under patient's neck and support head.

Roll the patient onto his farther side.

Turn the face slightly downwards to ensure drainage of fluids.

Airway

Check for clear

Open the mouth.

Look inside the mouth for foreign matter.

Feel inside the mouth.

Check-list	Tick
Scooping with fingers, being careful not to push matter further in. Remove dentures only if loose. (NOTHING APPARENT) **Open the airway** (PS 4.3.2) Backward Head Tilt (March 1987) Place one hand on the forehead or top of the head. Other hand to support the jaw at the point of the chin. Tilt the head backward (**NOT** the neck) (AFA p.44). Ensure face turned slightly downwards to enable fluids to drain from the mouth.	

Breathing

Check if the patient is breathing by observing for signs of respiration.

Look for movement of the lower chest and upper abdomen. (AFA p.51)

(NO MOVEMENT)

Listen and feel for the escape of air from the nose and mouth with your hand or cheek (PS 5.2 March 1987)

(NO EXPIRATION)

Feel, if necessary, for movement of lower chest and upper abdomen, however, movement here does not mean the patient has a clear airway.

(IF CHECKED, NO MOVEMENT)

It may be difficult to hear movement of air if there is background noise so it is important to follow the sequence — Look, Listen and Feel.

(NO BREATHING)

Quickly turn the patient onto the back and commence expired air resuscitation (E.A.R.):

Kneel beside the patient's head, open the airway:

Backward Head Tilt — place the palm of one hand on the forehead (PS 4.3.2 March 1987).

Support the jaw using pistol-grip between the knuckle of the middle finger and the thumb (AFA p.53).

Firmly but gently tilt the head backwards (not the neck).

Check-list	Tick
Lift the jaw upwards and forwards at the same time. Avoid excessive force. When neck injury is suspected USE CARE. The Airway **always** takes priority over any injury including a spinal injury. **Seal the nose** by pinching the nose with the thumb and index finger of the hand supporting the forehead or sealing with your cheek against patient's nostrils (AFA p.55). **Take a deep breath** **Seal your mouth over the patient's** **Slightly open mouth** **Breathe out quickly** Give **Five** (5) **Quick** **Effective ventilations** (AFA p.54) (Full breaths) with expired air **Within ten (10) seconds** **Chest should be seen to rise** indicating air has entered the lungs **Remove mouth** **Turn head to the side** **Observe chest fall** without waiting for it to fall completely, at the same time **listen and feel for air being exhaled.** **Circulation** **Check for presence of a pulse** While maintaining maximum head tilt with the hand on the forehead, the other hand supporting the lower jaw is moved to feel for the carotid pulse for five seconds (AFA p.9) (PS 6.2.1) **Use the flat pulps** rather than the fingertips as the fingertips are less sensitive. (The thumb is not used as it is even less sensitive.) (PS 6.2.2) **Use two or three fingers** **along the line of the carotid artery between the adam's apple and the large muscle of the neck ensuring not to press on the opposite carotid artery** at the same time. (PULSE ABSENT) (AFA p. 64 & 65)	

Check-list	Tick
Timing must reach this stage — in correct sequence — DRABC — within 30 seconds of start.	
Recognition of cardiac arrest (PS 6.2 March 1988) A collapsed victim has had a cardiac arrest if he/she is: **Unconscious** **Not breathing**, and has **No carotid pulse**. Commence cardiopulmonary resuscitation (C.P.R.) Kneel beside patient's chest (AFA p. 64 & 65). **External cardiac compression** (E.C.C.). **Locate compression site.** **Identify midline of sternum.** **Locate upper border** by feeling groove between collar bones. **Locate lower border** by feeling the lower ribs at the rib junction. **Identify the lower half of the sternum.** **Use the caliper method to locate and mark the centre of the sternum.** **Place the first finger of each hand** at the upper and lower borders of the sternum. **Bring both hands down** so that the **thumbs rest on the centre of the sternum**. The position for the hands is between the thumb and finger of the lower hand. **Place the heel of one hand centrally over the lower half of the sternum against the central marker thumb.** **Keep palm and fingers off the chest wall.** **Cover first hand with other hand.** Either grasp the wrist of the lower hand with the thumb of upper hand or interlock the fingers of both hands. **Press downward through the heel of the low hand.** **Keep compressing arm straight and vertical** so your body weight is the compressing force. **Lean forward** so shoulders are vertically over the sternum. **Press firmly** 4–5cm (1½"–2").	

Check-list	Tick
Lean backwards. **Press rhythmically** with equal time for compression and relaxation. Do not use rocking movements, thumps or quick jabs. The action is **compression** rather than massage hence the unacceptibility of the term external cardiac massage. **Pivot from the hips** and not the knees. **Release the pressure** to allow proper expansion of the chest but do not remove hands from the chest. Generate a pulse. Give 15 compressions immediately. **Compression rate** One press every ¾ second, i.e. at least 80 compressions BUT not more than 90 compressions/min or 15 compressions in 10–12 seconds. **Timing:** To this stage in 60 seconds. **Ratio:** Interpose two (2) ventilations after every 15 compressions. After every 2 ventilations the hand that releases the jaw feels for the rib junction and keeps the place marked while the other hand which releases the head is on the lower half of the sternum against the fingers. **Cycles per minute:** 4 cycles of 15:2, i.e. 60:8 per min. **Achieve:** At the end of each minute at least 60 compressions and 8 ventilations must be achieved. Instruct the Member to continue for at least three minutes during which the effectiveness skills sheet "A" at the end of the module can be completed. **Time limits:** 15 seconds maximum each C.P.R. cycle 10–12 seconds for each 15 compressions. 3–5 seconds for position changes and 2 ventilations. **Effective standards:** 8–10 ventilations/minute. 60 compressions/minute. Rate of compression 75–90 minutes. **Monitor effectiveness:** (AFA p.67) Regular revival checks (A.B.C.). After one minute (i.e. 4 cycles). After every two minutes thereafter (i.e. 8 cycles).	

Check-list	Tick
Continue until medical aid arrives (pulse and respiration do not return with this incident). *** — must be satisfactory to gain an overall PASS All criteria, including the rates, should be evaluated by the observer. Dials, lights, print-outs, etc. should be used to supplement the observations of the observer, not replace them. (At no time should evaluation be solely based on lights, dials, print-outs, etc.)	

Practical skill mastered

Signed: .....

Date: .....

Effective single-rescuer cardiopulmonary resuscitation

The number of compressions to be achieved during C.P.R. is 60 per minute. Allowing for the time taken to give 2 ventilations and to change from E.A.R. position to E.C.C. position and back again with each cycle, only about 40–48 seconds remain in each minute in which to press 60 times.

The required speed to achieve this is at the rate of 80–90 per minute (AFA p.73), with the maximum of 90 designed to allow adequate refilling of ventricles.

Therefore, each cycle of 15 compressions should take between 10–12 seconds allowing only 3–5 seconds for 2 ventilations and changing positions.

The complete cycle of 15 compressions and 2 ventilations should only take 15 seconds, with 4 cycles per minute giving a total of 60 compressions and 8 ventilations (AFA p.67).

The skills check list is used to assess the compression speed criteria.

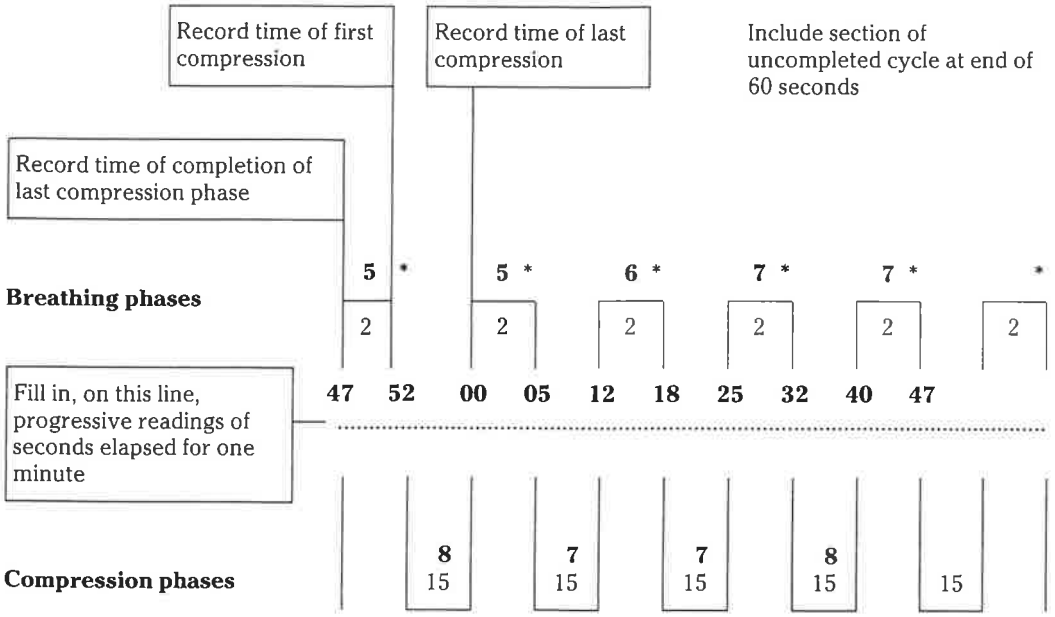
Method

Allow rescuer to perform first minute of C.P.R. to allow checking of techniques such as adequate inflation of lungs, correct hand position for compressions, etc. After first check for return of breathing and pulse at one minute (AFA p.68), prepare to use check sheet.

As rescuer continues, record on the dotted line the actual time shown as seconds on your watch at the end of one of the compression phases, (i.e. as the rescuer's hands leave the chest, at the end of the 15th compression).

Next note time (in seconds) when the first press of the next compression phase occurs. Continue noting times of first and last compression of each phase until one minute has elapsed. Timing should be whilst rescuer is performing rather than waiting till watch zeroes and telling rescuer to start.

Example



Then Complete Achievement Chart:

Total number of breaths	**10**	Total number of compression [a]	**60**
Total elapsed time for breaths	**30**	Total elapsed time for compressions [t]	**30**

Then Complete Assessment of Compression Application Rate Table:

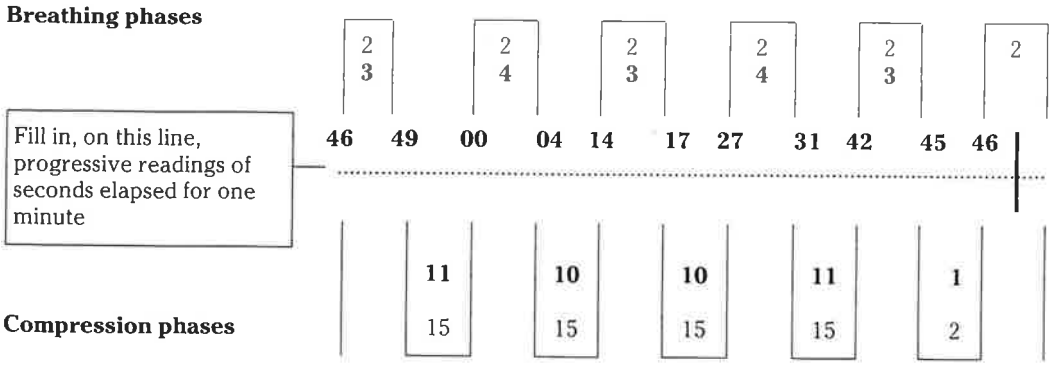
Assessment of compression application rate

$$\text{RATE (compressions) (per minute)} = \frac{\text{Number of achieved [a] compressions} \times 60.}{\text{Total elapsed time [t] of compression phases}}$$

$$\frac{[a] \times 60}{[t]} = \frac{\mathbf{60} \times 60}{\mathbf{30}} = \mathbf{120} \quad \textbf{(i.e. } \frac{\mathbf{3600}}{\mathbf{30}}\textbf{)}$$

This shows that the time taken for ventilations and change over is too slow and the compression rate is too fast. The number of achieved breaths and compressions meet the required criteria yet the rate of 120 compressions per minute would reduce the chances of a successful resuscitation due to limited refilling of ventricles.

An example of preferred timing is as follows:



Total number of breaths	**10**	Total number of compression [a]	**62**
Total elapsed time for breaths	**17**	Total elapsed time for compressions [t]	**43**

Assessment of compression application rate

$$\text{RATE (compressions) per minute} = \frac{\text{Number of achieved [a] compressions} \times 60.}{\text{Total elapsed time [t] of compression phases}}$$

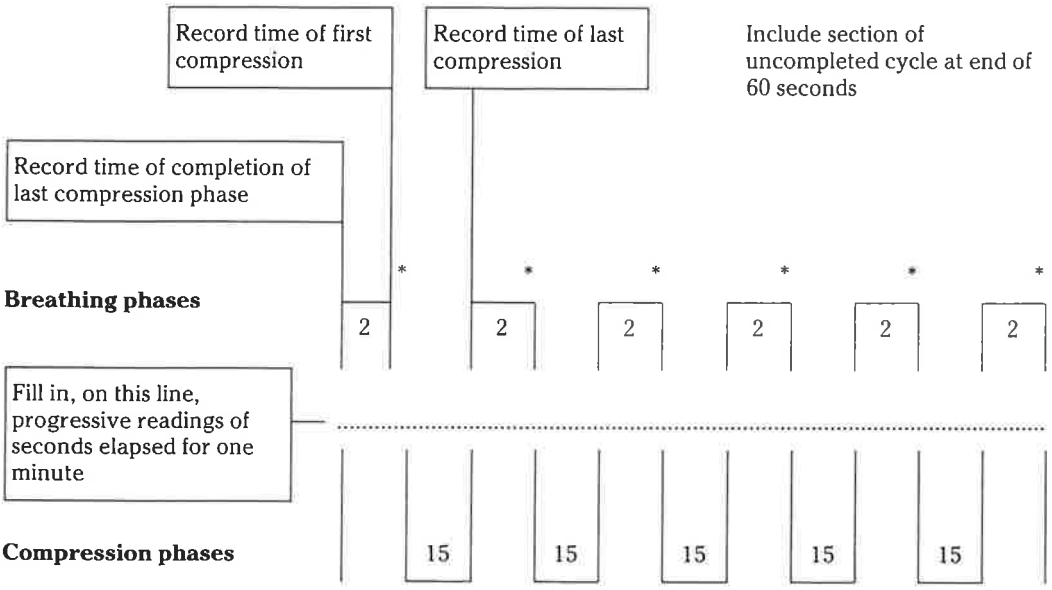
$$\frac{[a] \times 60}{[t]} = \frac{\mathbf{62} \times 60}{\mathbf{43}} = \mathbf{87} \quad \textbf{(i.e. } \frac{\mathbf{3720}}{\mathbf{43}}\textbf{)}$$

Although it almost needs a pocket calculator to obtain exact results it will soon be recognised that anything in the range of 40–48 seconds for the 60 compression is acceptable without actually calculating the exact result. Likewise anyone achieving more than **60** compressions must give 2 extra ventilations thus achieving more than **70** compressions per minute, must be pressing too fast, as to achieve 70 compressions at the maximum rate of 90 per minute means achieving the 10 ventilations and changeovers under 13 seconds.

Skills check sheet for effective single operator cardiopulmonary resuscitation

Given a resuscitation manikin a lone rescuer will be able to:
effectively perform cardiopulmonary resuscitation

- using both mouth-to-mouth and external cardiac compression
- using the ratio of 2 inflations to 15 compressions in each cycle
- achieving 8–10 inflations and 60 compressions in a one minute test period, and
- not exceeding a compression *application* rate of 90/minute.



Total number of breaths .... Total number of compression [a] ....
Total elapsed time for breaths .... Total elapsed time for compressions [t] ....

Assessment of compression application rate

(The compression *application rate is NOT* the total number of compressions performed in a one minute test period.)

$$\text{RATE (compressions) (per minute)} = \frac{\text{Number of achieved [a] compressions} \times 60.}{\text{Total elapsed time [t] of compression phases}}$$

$$\frac{[a] \times 60}{[t]} = \frac{.... \times 60}{....} = ...$$

Practical skill mastered

Signed: .....

Date: .....

SECTION A
MODULE 4

Resuscitation for special circumstances

OBJECTIVE On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module check lists) the St John member will be able to apply one or more of these skills to the section's practical incident:

Practical skills

4.1 Perform effective E.A.R. for Children and Infants.
4.2 Perform effective Cardiopulmonary Resuscitation for Children and Infants.
4.3 Perform effective Expired Air Resuscitation for a simulated patient with a Laryngectomy Stoma.

Prescribed references:

Australian First Aid (AFA)
Australian Resuscitation Council — Policy Statements (PS)

4.1 Perform effective expired air resuscitation for children and infants

Reference: Australian Resuscitation Council Policy Statements 5.4 and 7.1.2.
Australian First Aid

Definition

Child:
A child is defined as one to eight years of age.

Infant:
An infant is defined as younger than one year.

Children (to eight years)

Clear the airway

(this should take no more than 3–4 seconds)

- Quickly turn the child on one side.
- Clear mouth and nostrils of foreign materials.

Check for breathing

With the child lying on one side, check for breathing by supporting the jaw with the head in the neutral position. A slight head tilt may be necessary to achieve an open airway. Look for movement of the lower chest and abdomen and listen for escape of air from the nose and slightly open mouth.

If breathing, leave the child lying on his side and support his jaw. Continue assessment of the patient.

If not breathing, blow and look

Quickly place the child on his back. Keep his head horizontal and support his jaw. The rescuer places his widely open mouth over the child's slightly open mouth and puffs gently, using just enough pressure to cause the chest to rise.

If the chest does not rise, check for:

- obstruction in the airway (inadequate head tilt or jaw support, tongue or foreign material)
- not enough air being blown into the lungs
- inadequate air seal or air leak.

Listen

Following inflation of the lungs, the rescuer lifts his mouth from the child's mouth and, with the rescuer's ear about 25 mm from the victim's mouth and nose, listens for escape of air from the lungs.

At the same time the rescuer observes the fall of the chest and looks at the victim's stomach to ensure that it has not been distended. If the stomach is distended, check for obstruction.

DO NOT APPLY PRESSURE TO THE STOMACH

Rate

Inflation of the lungs should be repeated 20 times per minute and the pulse should be checked every two minutes. When breathing recommences, the child should be placed on his side.

Notes

The amount of head tilt required to create an open airway increases with the age of the child. Whether both mouth and nose need to be covered will depend on the size of the child.

Infants

The technique is similar to that used for children.

The head is very unstable and must be supported continuously.

It is important to avoid pressure with the fingers on the soft tissues under the chin, as this may obstruct the airway.

During expired air resuscitation the rescuer places his slightly open mouth over the infant's mouth and nose.

During expired air resuscitation the gentle puffs may need to be from the rescuer's cheeks, using just enough pressure to cause the child's chest to rise. Too much pressure may distend the infant's stomach.

4.1

Expired air resuscitation for children and infants

Incident

You are attending a private function when you see a child about six years old being rescued from the swimming pool. The child is placed lying on the side, in a safe area away from the pool. On approach you establish there is no response to shake and shout.

Check-list	Tick
Airway **Check for clear** Open the mouth. Look inside the mouth for foreign matter. (Nothing apparent) **Open the airway** Place one hand on the forehead or top of the head. Other hand to support the jaw at the point of the chin. Tilt the head back slightly (not the neck). Ensure face slightly down to enable fluids to drain from the mouth. **Breathing** Check if the patient is breathing. (No breathing) Quickly place the child onto the back. Tilt head back slightly and support jaw. Place your widely open mouth over the child's slightly open mouth. Puff gently with just enough pressure to cause the chest to rise. Look for fall of chest.	

Check-list	Tick
Look to ensure stomach has not been distended. Listen with your ear about 25 mm from the patient's mouth and nose for the escaping air. Give initial 5 breaths. **Circulation** Check for pulse (Pulse present) Continue E.A.R. at 20 times per minute.	

Practical skill mastered

Signed: .....

Date: .....

4.2

Perform single rescuer effective cardiopulmonary resuscitation in children and infants

Incident

In the scenario for practical skill 4.1, during E.A.R., when a vital sign check is made after one minute the pulse is absent. Continue from that point.

Check-list	Tick
Circulation Check for presence of pulse. (Absent) Locate midpoint of sternum using caliper method. **Children** (to eight years) Ref. PS 7.1.2. AFA p.70–72 Because of the variability in size of children of the same age, the specification of eight years should be interpreted as a working guideline only for determination of the site of compression.	

Check-list	Tick
Place heel of one hand over midpoint. Depress 25 mm (1"). **Single rescuer** Give 15 compressions in 10 seconds. Give 2 inflations. Achieve 12 inflations and 90–100 compressions per minute (6 cycles). **Infants** (to one year) The above criteria should be modified for infants as follows: Place 2 fingers over the middle of the sternum. Depress 15 mm. Continue using rates and ratios for **Children**. **Recovery** Check after one minute and at least every two minutes.	

Practical skill mastered

Signed: .....

Date: .....

4.3

Perform effective expired air resuscitation (E.A.R.) mouth to stoma method

Reference: Australian Resuscitation Council Policy Statement 5.3.4.

A laryngectomee is a person who has had the larynx (voice box) removed. This may be part of the treatment of cancer, burns, injury or infection. Removal of the larynx, total or partial, results in the person breathing through a hole in the front of the neck (stoma). These people are known as neck breathers and require special care in an emergency. Some breathe only through the stoma (total neck breathers); others through stoma, mouth and nose (partial neck breathers).

A cravat, scarf or other fabric filter over the neck should alert the rescuer to the possible presence of a stoma. A stoma will be more obvious when the victim is on

his back for Expired Air Resuscitation and the head is put into backward tilt. If a tube is seen in the stoma, always leave it in place to keep the hole open for breathing and resuscitation.

Expired Air Resuscitation

Supporting the jaw with the head in backward tilt will make it easier for the rescuer to seal his mouth over the stoma.

If the chest fails to raise, this may be due to:

- a poor seal over the stoma
- the victim being a partial neck breather and air is escaping from mouth and nose
- a blocked stoma or tube. Do not remove the blocked tube.
- Use back blows in an attempt to dislodge the obstruction.

Partial neck breathers

For a partial neck breather, the rescuer should place the palm of one hand over the victim's cheek, sealing the nostrils with index and middle fingers, using the thumb to press the chin upwards and backwards sealing the lips. When the chest rises, lift the fingers sealing the nose and mouth and listen for the escape of air from nostrils and stoma.

All other steps of cardiopulmonary resuscitation are the same as for any other collapsed victim.

4.3

Expired air resuscitation (E.A.R.) — mouth to stoma method

Incident

You are attending a private function when you see a middle aged person collapse. Examine the patient and treat accordingly. There are no obvious dangers and the patient did not respond to shake and shout.

Check-list	Tick
Quickly turn the patient away from you onto the side (AFA p.44) Place the farther arm at right angles to the body. Place the nearer arm across the chest. Bend the nearer knee to bring thigh at right angles to the hip. Place your hand under patient's neck and support head.	

Check-list	Tick

Roll the patient onto the farther side.
Turn the face slightly downwards to ensure drainage of fluids.

Airway

Check for clear

Open the mouth.
Look inside the mouth for foreign matter.
Feel inside the mouth, scooping with fingers, being careful not to push matter further in.
Remove dentures only if loose.
Wipe away any mucus or vomit from the tube or stoma using a finger or piece of cloth.

(Nothing apparent)

Open the airway

Backward head tilt. (PS 4.3.2)
Place one hand on the forehead or top of the head.
Other hand to support the jaw at the joint of the chin. Tilt the head backward (not the neck) (AFA p.44).
Ensure face turned slightly downwards to enable fluids to drain from the mouth.

Breathing

Check if the patient is breathing by:

Observing for signs of respiration.
Looking for movement of the lower chest and upper abdomen.

(No movement)

Listen and feel for the escape of air from the nose, mouth and stoma with your hand or cheek.

(No expiration)

Feel, if necessary, for movement of lower chest and upper abdomen: however, movement here does not mean the patient has a clear airway.

(If checked, no movement)

(No breathing)

Quickly turn the patient onto the back and commence expired air resuscitation (E.A.R.).
Kneel beside the patient's head. (PS 4.3.2)

Check-list	Tick
Open the airway Backward head tilt. Support the jaw using hand nearest the head (AFA p.53) Take a deep breath. Place your open mouth over the stoma or tube. Breathe out firmly until the chest rises. GIVE FIVE (AFA P.54) QUICK EFFECTIVE VENTILATIONS (FULL BREATHS) WITH EXPIRED AIR WITHIN TEN (10) SECONDS REMOVE MOUTH TURN HEAD TO THE SIDE OBSERVE CHEST FALL LISTEN AND FEEL FOR AIR BEING EXHALED. **Circulation** Check for presence of pulse. (Pulse present) Continue E.A.R. at 15 times per minute. (PS 5.3.2)	

Practical skill mastered

Signed: .....

Date: .....

SECTION A

Practical incident management notes

Section 'A' completed
— satisfactory standard obtained

Signed: .....

Date: .....

SECTION B
MODULE 5

Emotional disturbance and mental illness

OBJECTIVE On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module check-lists) the St John member will be able to apply one or more of these skills to the section's practical incident:

Practical skills

5.1 Perform an effective mental state assessment of a patient.
5.2 Manage a patient with an acute grief reaction.
5.3 Manage a violent patient.

Comparison of neurotic, psychotic and depressive states, and their management, is described in *Australian First Aid*, Chapter 22, pp. 292–296.

Training session

The preferred method of training for this Module would be for the topics to be discussed in a group session under the leadership of a person with special expertise in this field, followed by role plays of the assessment and management of the two incidents described over.

Behaviour related to grieving

Grieving, or grief, is a process that occurs in response to a loss. This loss may be of anything that is significant to the patient such as health (upon learning of an illness, or after sudden injury or disability), a job or status, a loved one (through death, termination of a relationship, or separation of some kind), a pet, or a role (such as the mother role when the youngest child is grown and leaves home). The loss may be anticipated when the patient is aware that a loss will take place (such as when the patient or a significant other is dying), or actual when the loss has already occurred or is occurring. A loss may be observable to others or may be perceived only by the patient (as with the loss of a fantasy or ideal the patient has held). Grief may be in response to a change since change involves loss.

The normal grief process has been described by various authors as a process consisting of stages, including shock and denial, developing awareness, anger, mixed positive and negative feelings about the loss, depression, release, acceptance and integration of the experience. This progression does not necessarily occur in a certain order. Moreover, skipping stages or going from one into another and back again is common and the time spent in each phase and in the process as a whole varies considerably among individuals (from weeks to years).

Grief may be called grief work, as the patient must actually work through these phases of the process, expressing and accepting the feelings involved (though all of this work is not usually completed in the hospital). When the patient does not do this work, unresolved grief or a morbid grief reaction may result, in which the patient may deny the loss, deny feelings, exhibit depressive and/or withdrawn behaviour, or develop symptoms of physical or psychiatric illness.

New methods of dealing with stress must be developed if the lost person or object was integral to previous coping strategies, and the patient's lifestyle must be adapted to the loss and new life situation.

The goal in grief work is not to avoid or eliminate painful feelings. Rather, it is to experience, express, work through, and become comfortable with the "uncomfortable" emotions.

Aspects of assessment

Verify the perceived or observable loss.

Talk to the person about the loss and note any:

— denial of the loss;
— suppression of feelings related to the loss;
— fear of intensity of feelings;
— rumination;
— guilt feelings;
— anxiety and agitation;
— anger and hostility;
— depression, withdrawal, crying.

Aspects of management

Establish communication with the patient and attempt to enable the patient to express feelings that may be difficult to express.

Decrease the patient's fears of being overwhelmed by feelings and of having feelings that are destructive, harmful or undesirable. The patient needs to express underlying feelings to proceed through the grief process. Avoiding the feelings may delay the patient's grieving. Accept the patient's verbalisations of feelings as correct — do not answer with platitudes.

Convey to the patient that although feelings are uncomfortable, they are natural and necessary to this process, that he or she can withstand having these feelings, and that the feelings will not harm him or her. NOTE: If you feel uncomfortable with the patient's expression of feelings (such as crying), or with your role in bringing up painful feelings, then withdraw temporarily. Examine and try to become comfortable with your own feelings, or have the patient speak to someone who is comfortable in that role. However, keep the number of people to a minimum to avoid unnecessary confusion.

Your comfort with the patient's feelings conveys support and acceptance. If you are uncomfortable, however, you may inadvertently convey lack of interest, or disapproval. Your presence demonstrates interest and caring. The patient may need emotional support to face and express uncomfortable or painful feelings. Use supportive body language, gestures, touch if appropriate.

Decrease denial; help the patient grasp the fact of the loss. Talk with the patient in realistic terms concerning the loss. Discussing it may help to make it more real for the patient.

If circumstances permit, it is generally desirable for a bereaved person to spend some time with the body of the dead person to assist their "coming to terms with the loss". Although this may appear distressing, it greatly assists the progress of the grieving process.

Arrangements must be made to transfer care of the grieving person to a responsible friend or relative for continuing support.

Violent behaviour

Violent behaviour and aggressiveness may occur for a variety of reasons ranging from confusional states (e.g. due to epilepsy, head injury, hypoglycaemia, alcohol and drug intoxication, etc.), through emotional disorders and mental illness (e.g. people responding to delusional ideas or hallucinatory "voices" telling them what to do), to anger outbursts in response to social situations.

The initial phase of management is an assessment of the nature and cause of the aggression. This is done by obtaining a history of the events surrounding the incident, from bystanders and from the aggressive person, followed if possible by a routine physical examination. This will, of course, depend on the successfulness of achieving rapport and cooperation with the patient. DO NOT ATTEMPT TO UNDERTAKE PHYSICAL EXAMINATION IF THE PATIENT DOES NOT WISH TO COOPERATE.

Aspects of management

The next page summarises the Do's and Don'ts in a Management Guidelines table reprinted from the text "Psychological Emergencies and Crisis Intervention".

Disruptive and aggressive patients management guidelines

Remember — your first task is to protect yourself and others.

Don'ts	Do's
• Don't put yourself in a position of danger	• If danger exists, create a safe zone and wait for police assistance
• Don't attempt to diagnose, judge, label or criticise the patient	• Keep bystanders away from danger area
• Don't isolate yourself from other team members	• Remove any person or object from the environment that seems to be triggering the patient's aggression
• Don't isolate yourself with a patient who has a record of potential violence	• Convey a sense of helpfulness rather than hostility or frustration
• Don't disturb a patient with treatments or taking vital signs any more than is necessary	• Establish voice control by asking bystanders what the problem is loudly enough so that the patient can hear you
• Don't turn your back on a patient	• Identify yourself
• Don't position yourself between the patient and the only doorway	• Let the patient know what you expect
• Don't forget that disturbed patients' moods can fluctuate rapidly	• Present a comfortable, confident and professional manner
• Don't reject any of the patient's complaints — acknowledge them	• Ask the patient his name and what the problem is
• Don't threaten, lie, bluff or deceive the patient	• Listen to, but do not take insults and abusive language personally, or respond to them
• Don't take insults personally	• Be honest
• Don't rush into action	• Speak in short sentences with simple ideas and explanations
• Don't show hostility toward the patient's words or actions	• Remain relaxed and confident
• Don't appear aggressive or defensive	• Adjust your physical distance from the patient to a safe range — at first no closer than approximately ten to fifteen feet — move closer only after adequate assessment and when it appears that it's safe to do so

- Don't be overly friendly
- Don't sound authoritarian or demanding when you speak to the patient
- Don't attempt to restrain a patient unless you have adequate assistance to do so safely
- Respect the patient's difficulty in self-control. Tell him that you are aware of the problem of dealing with it, and acknowledge the patient's attempt to deal with it
- Acknowledge the patient's complaints — you do not have to agree, but acknowledge that he has a reason to be upset
- Use gestures and other non-verbal messages carefully. They may communicate the opposite of what you intend. A disturbed patient may interpret friendliness and smiling as an attempt to trick him
- If your preventive actions fail to reduce hostile, violent and combative behaviour, the patient is in control and it may be necessary to restrain the patient to protect him and others
- Assess the patient's strengths
- Make certain that you have a plan and sufficient personnel to prevent injury to the patient and yourself.

NOTE: When called to the scene of a criminal act, your first concern is to care for the injured patient(s).

- Always cooperate with law enforcement personnel.
- Disrupt or touch as little evidence as possible.
- If the patient is moved, mark the original body position.
- Provide reassurance and emotional support. Common patient responses include outrage, disbelief, withdrawal, hysteria, and depression.
- Know and follow all local protocols for reporting and inter-agency cooperation.

5.1

Perform an effective mental state assessment of a patient

Check-list	Tick
Check for danger in the area.	
Check patient's conscious state: — if unconscious, proceed as per Module 3 — if conscious, ask: • "Are you all right?" • "What has been happening to you?"	
Test of memory: — introduce yourself by name, and ask the patient's name	
Ask: (orientation in *place*): — Do you know where you are?	
Test of memory: — How did you come to be here?	
(orientation in *person*) — Do you know who I am?	
(orientation in *time*) — Do you know the date today? (Query day, date, month and year).	
Observe: — Appearance of person — Mood of person (depressed/elated; calm/agitated; anxious/unconcerned; inappropriate) — Alertness, responsiveness — Whether thoughts are logical or irrational — Whether ideas are coherent or fragmented — Whether the person behaves strangely (if the patient talks to himself or if other actions suggest unusual thoughts, it is permissible to ask, "Are you hearing other voices talking in your thoughts?")	
Check as for routine physical examination: — eyes, ears, nose, mouth — pulse rate — respiration rate	
Record all observations.	

Practical skill mastered

Signed: .....

Date: .....

5.2
Manage a patient with an acute grief reaction

Incident

You are on duty at a football match when an elderly man suffers a cardiac arrest and dies despite intensive treatment by a specialist resuscitation team. You are asked to assist the man's acutely distressed wife.

Check-list	Tick
Obtain relevant bystander history of incident.	
Obtain relevant history from patient: — Note whether the account is realistic — Whether mood is in keeping with the story — Whether the patient is able to express feelings.	
Assess patient and treat for shock if necessary: — Ask is there a relative or friend who could be contacted to accompany her home — Ask the patient if she wishes to talk about the incident, assuring her that it may be helpful to do so.	
Ascertain whether it is practicable for her to see the deceased person. If so, ask the patient whether she desires this.	
Remain with patient until transfer to alternative supervision is possible.	

Practical skill mastered

Signed: .....

Date: .....

5.3

Manage a violent patient

Incident

At the scene of a car smash, the driver who was alleged to have caused the accident by his erratic driving is behaving in an agitated, abusive, aggressive manner towards the other driver and bystanders. He claims to be immune to the law because he is the Son of God and must leave the scene because he has an urgent special mission.

Demonstrate your method of handling this case.

Check-list	Tick
Obtain relevant bystander history of incident.	
Arrange for Police to be called.	
Obtain relevant history from patient if possible.	
Undertake Mental State Assessment as per Item 5.1 as far as practicable.	
Talk persuasively to patient to encourage cooperation in your assessment. Speak in short sentences with simple ideas and explanations.	
Keep at an appropriate distance from patient, close enough to converse and assess, but not so as to be seen as threatening.	
Maintain conversation but do not argue with patient or respond to hostile provocations.	
Do not attempt to restrain patient unless you have adequate assistance to ensure success with safety, and then only if obliged to do so for the safety of patient or others.	

Practical skill mastered

Signed: .....

Date: .....

SECTION B
MODULE 6

Sporting injuries

OBJECTIVE On completion of the training period and after studying the material listed below the St John member will be able to apply this knowledge and practical skill to the section's practical incident:

Practical skill

6.1 Treat a Soft Tissue injury to a knee.

A Endurance sporting events

Any discussion of illness caused by or related to endurance sporting events requires an appreciation of the changes to body functions during exercise. Several factors need to be considered including:

1 Body composition differences between male and female athletes.

2 Muscular function.

3 Energy and oxygen consumption.

4 Respiratory system effects.

5 Effect on heat performance and blood flow.

6 Sweating and heat production.

Males and females

The same changes of body function apply equally for men and women. There are however differences in body size, composition and the presence of the male sex hormone Testosterone that affects the quantity of performance. In women, measures of function related to muscle strength, cardiac output and respiration are approximately two-thirds to three-quarters those of men. However, the actual athletic performance is not affected to the same degree owing to the generally small body stature. Nonetheless differences in athletic performance between men and women are related to sex hormone effects.

Testosterone is the male sex hormone produced in the testes. It increases protein deposition in the body tissues, especially in muscle. It also plays a role with the production of an aggressive attitude. Testosterone-like drugs are called anabolic steroids.

Oestrogen is the female sex hormone, produced mainly from the ovary, although some female sex hormone is produced in both males and females from the adrenal glands located just above the kidneys. The quality of its effect is much less than Testosterone. Its main noticeable effect on body shape is the accumulation of fat in general throughout the whole of the body but more specifically the breasts, hips and beneath the skin.

At the onset of puberty both males and females experience a growth spurt. In the female, this growth spurt is short-lived and the growing areas of long bones close some two to three years earlier than in the male counterpart. In general this results in a shorter stature.

The non-athletic female of normal weight for height has a fat content of approximately 26% while the male counterpart is 45–50% leaner with a fat content of approximately 15%. The trained endurance athlete's fat content is 6–8% for females and 4% for males.

Muscular performance

The three factors that dictate both quality and quantity of muscular performance are:—

1 Strength
2 Power
3 Endurance.

Muscular strength is related to muscle size. The two main factors in increasing muscular size are the effect of Testosterone as detailed above and an exercise training programme. Muscular size increases progressively with a graduated programme. The increased demand enhances the accumulation of protein within a muscle cell which is then converted into contractile tissue. The following lay person's description is indeed the manifestation of this process. "The flabby muscle is firstly toned, then gains bulk and definition."

Muscular power is the amount of work that a muscle can perform in a period of time. The explanation of how it is measured is beyond this discussion. But it is a physical function related to muscle strength, the speed of muscular contraction and the number of muscle contractions per minute.

Muscular endurance is the length of time that an activity can be sustained. Although strength and power are important, it is related to the amount of energy that can be produced by the breakdown of Glycogen stored within the muscle and the ongoing availability of nutrients.

Glycogen is the compound that glucose particles are converted into following absorption from the small intestine. It is present in both muscle and liver and is dependent on the action of insulin for its accumulation. One could think that increased carbohydrate intake in the days before an athletic endurance event would increase the body stores of Glycogen. This indeed is the case and is termed carbohydrate loading.

Nutrients — oxygen debt

Athletic activity can be performed by utilization of glucose without oxygen. The length of time that this can be sustained is short lived as the waste products produced result in muscular fatigue once a build up has occurred. Muscular function can occur with the above system for up to say a 200–300 metre race. However, oxygen and nutrients will be needed for the recovery of the muscle and replacement of its energy stores.

Oxygen and glucose are the main energy providing compounds for the maintenance of muscular performance in endurance events. Oxygen is required for the promotion of chemical reactions which take place when glucose is broken down to produce the energy compound which initiates muscular contraction. It is certainly more complex than that but for the purposes of this discussion suffices.

Oxygen is stored in the various areas of the body. Approximately 300 mls is stored in muscles. A litre is attached to haemoglobin. 500 mls sits in the area of the lungs and 250 mls is dissolved in the body fluids. Most of this oxygen is used during exercise and needs to be replenished later. Oxygen is also required to replenish the energy systems and deal with the waste products that are produced by muscular activity without oxygen at the initial commencement of athletic activity. The quantity of oxygen required to reset the system at the conclusion of exercise is termed oxygen debt. It can be as much as 10–15 litres of oxygen (the oxygen content of 50–75 litres of air) and take up to two hours following strenuous activity.

The nutrients that are used as energy sources are:—

1 Glycogen which is stored in muscles, liver and converted into glucose.

2 Fat broken down into fatty acids and ketones and then used as substrates for energy production.

3 Aminoacids which are the components that form proteins.

In an appropriately prepared athlete, glycogen stores can last for about 4 hours; after that time glucose is obtained by absorption from the intestine. A glucose solution of approximately 2–2.5% taken frequently during an endurance event can provide 30–40% of the energy required for that event. After the first 4 hours, 50% of the energy required can be obtained from fat.

Respiration

The normal oxygen gas requirement for an average person at rest is approximately 250 mls per minute. During exercise, the untrained average male for height and weight utilizes 3,600 mls per minute. The trained male is able to utilize 4 litres and the trained endurance event athlete 5.1 litres per minute. The maximum volume of air that is breathed during exercise is approximately 100–110 litres per minute.

However, this is much less than the maximum breathing that the body can achieve which is 150–170 litres per minute. Therefore, it is not the respiratory system that limits the maximal amount of achievable athletic performance.

Smoking is counter productive. The nicotine contained in cigarette smoke has several effects which impair lung function.

1 It causes spasm and narrowing of the smaller airways thus making it more difficult to move air in and out.

2 Nicotine produces increased secretion of mucus due to direct chemical irritation of the lining of the airways.

3 It creates inflammation of the airway linings, further narrowing them.

4 It impairs the activity of the small hair fibres of the larger airway cells (cilia) which form a microscopic carpet. Under normal circumstances these beat to produce a wave of activity which moves dust particles and mucus towards the upper airway for elimination. We normally do not appreciate this function but in some instances, for example during a mild infection such as bronchitis, we are conscious of this action as we cough or clear our throat which is then followed by swallowing or sputum expectoration.

Heart action and blood flow

Muscle blood flow is markedly increased during exercise. The normal blood flow is approximately 3.6 mls per 100 grams of muscle tissue. In strenuous activity it is increased to 90 mls per 100 grams of tissue, a 25 fold rise. Arterial blood pressure tends to rise by up to 30% and is contributory to increased muscle flow.

The heart normally pumps 5 to 5.5 litres of blood per minute in an average healthy adult male. During exercise, it rises to about 23 litres per minute. In the conditioned endurance event athlete, outputs of 30 litres per minute or six times the resting flow can be achieved.

Training and conditioning can increase heart chamber size and muscle mass by 40%. In exercise, both rate and stroke volume — the volume ejected from the heart with each beat — is increased to 95% of maximum function and thus an output of 90% of what a person can maximally achieve.

Exercise is the most strenuous activity that one can place on the heart.

Body heat, fluids and salt

Almost all of the energy released during the processing of the nutrients by various chemical reactions is converted into heat. Only 20–25% of the total energy produced is utilized in muscular work. Oxygen consumption, as previously mentioned, can be

increased 20 fold and the heat production is directly proportional to that oxygen consumption. One can then appreciate the quantity of heat that is produced in the body's tissues during endurance activity.

Sweating is the mechanism by which the body cools down. In a cool and dry environment with a breeze this is efficient. However, on a hot humid day, this mechanism becomes less efficient. Under these circumstances, the person may become heat affected or develop a heat exhaustion illness. Efficient sweating can result in a loss of 2–3 litres (1 litre = 1 kilogram weight) of fluid and thus body weight during each hour of an endurance event. A 3% loss of body weight can decrease performance and a 10% loss can lead to nausea, muscular cramps and other effects. As body temperature rises above a certain level, sweating ceases and body temperature continues to rise with disastrous consequences.

The type of fluid replacement and its salt content has been clarified over the years. A relatively untrained competitor loses significant amounts of salt (sodium chloride) in sweat. The concentration of salt in sweat of the "unacclimatized" person approaches two-fifths that of normal saline (normal saline is a solution of 9 grams of sodium chloride salt in a litre of water). In other words, two-fifths of this sweat loss is equivalent to this salt solution, the remaining three-fifths is water.

An athlete who is trained for endurance events becomes "acclimatized" and the salt loss in sweat is one-sixth that of the unacclimatized athlete. Thus, the fluid requirement of the relatively untrained competitor needs a quantity of sodium chloride whereas the endurance athlete may only require a glucose solution. Unfortunately, salt-containing solutions can cause abdominal discomfort and vomiting and affect performance. Potassium loss has been identified as a further significant problem, and solutions used for fluid replacement now do contain it.

B Soft tissue injuries from sporting events

The effective treatment of acute soft tissue injury requires prompt assessment of the injury followed by the commencement of the R.I.C.E. programme.

Common injuries

Bruises (bleeding into the soft tissue and muscles)
Ligament sprains and tears
Muscular and tendon strains and tears
Joint injuries
Over-use injuries, e.g. ligaments, joint or tendon inflammation
Stress fractures.

Both sprains and strains are over-stretching injuries. "Sprains" involve ligaments and joints. "Strains" relate to muscle and tendons. Muscular and ligament tears may be partial or complete.

Mechanisms

Most sports injuries are the result of a direct blow producing bruising (or contusion) or indirect dynamic force resulting in sprains, strains and tears. An increasing number of injuries are the consequence of over-use situations. For example, joint, body or tendon pain owing to an excessive frequency of aerobic exercise sessions.

Prevention

Appropriate warm up and cool down activities.

Proper stretching and flexibility work.

In some cases, protective strapping, e.g. ankle.

Being physically fit to perform a particular sport. This requires general fitness and special skills training, e.g. football or soccer.

Adequate balanced diet. This reduces the need for dietary supplements.

Treatment

Once injury has occurred, the R.I.C.E. programme must be started.

R Rest. The injured soft tissues must initially be rested to decrease haemorrhage and swelling. Subsequently, a period of rest allows healing.

I Ice applied for twenty minutes in one application. It must not be applied directly on the skin. Direct application to the skin will harm it. Crushed ice should be wrapped in a wet towel or placed in a cotton bag prior to its application. The ice pack is applied around the affected joint or muscle. A bandage may be needed to retain the position of the pack.

Crushed ice is cheap, effective, easily prepared but messy. Manufactured 'cold packs' are every effective but cost. Some 'cold packs' can be applied directly to the skin and some cannot. It is important that the manufacturer's instructions are followed. Frozen food in a plastic bag, e.g. peas, is also an effective substitute. However, once thawed, the contents must be cooked or discarded.

C Compression from a moderately firm bandage controls swelling.

E Elevation of the injured part helps drainage and controls swelling.

Harm factors must be avoided

H Heat increases bleeding and swelling.

A Alcohol increases bleeding and swelling.

R Running or exercise too soon causes further injury.

M Massage in the first 24 to 48 hours increases swelling and bleeding.

If a **fracture** is suspected, the injury should be treated as one and referred for a medical opinion as soon as possible.

Dislocations should have ice packs applied over or around them, splinted in a comfortable position and immediately referred to an emergency department or a medical practitioner for assessment and continuing care. **No reduction is to be attempted by a first aider.** There may be a fracture associated with the injury which may affect the reduction and compromise the final result if treated discourteously.

Continuing care

Following the initial treatment, every two hours, while awake, for the first twenty-four hours, apply an ice pack to the injured area over the compression bandage for twenty minutes, still keeping the injury elevated.

Icing is best performed at least four times a day on the second day.

A medical practitioner or a physiotherapist should see the injured competitor for follow up no later than 48 hours after the injury.

Return to activity

No competitor should participate in a sporting event while an injury remains painful. Pain implies incomplete healing and potential further aggravation of an existing injury. A safe return to sporting activity requires:—

The injury to be completed healed.

As appropriate, the participation in a rehabilitation programme designed to regain strength, balance, mobility and coordination of muscle or joint activity. This should be coordinated by a physiotherapist in consultation with a medical practitioner.

C Heat exhaustion in distance runners

A wide spectrum of injury and medical problems can occur in any runner in any sporting event. However, with endurance or distance events, a particular problem is Exertion-induced Heat Exhaustion. One must bear in mind that the "Fun Runner", as opposed to the professional or serious amateur, is one who tends to train in the cool of the day and is not conditioned for competition. Heat affected individuals are those runners who collapse with an initial central body (core) temperature as measured with a rectal thermometer of 38.5 degrees or higher.

Heat exhaustion, as induced by the exertion of running, covers a range of situations from simple heat exhaustion to heat stroke. These conditions are dealt with in the 1988 National Skills Maintenance Programme and the reader is directed to this information.

Our previous discussion reviews the way the body physiology alters in order to deal with the stress of exercise.

1 Fluid loss

This can be considerable and must be replaced. If the patient is conscious, the safest fluid to be given by mouth is water. In the unconscious person, intravenous fluid is required but the type and method of administration is a medical rather than a first aid issue.

2 Fever

The body temperature can be significantly elevated. A core temperature of greater than 38 degrees constitutes heat illness. In the sports person who has collapsed or just competed, temperatures taken by mouth are not indicative of the core temperatures. However, first aiders are not permitted to take rectal temperatures.

Methods of heat reduction include:

a removal of heat retaining clothing

b moving the person into the shade. A gentle breeze blowing around the patient facilitates heat loss. A fan is useful.

c apply ice packs to the groins, arm pits and around the neck.

3 Low blood sugar

When low blood sugar is a problem, it is the result of the body having consumed most of its available glucose supply. If the person is conscious, it is best replaced by mouth with a glucose drink. Unfortunately, these persons are usually either unconscious or have an altered conscious state and therefore cannot be given anything by mouth.

4 Muscle cramps

These are best managed by:—

a stretching the affected muscle groups

b the application of ice packs.

Prevention

"Better than cure"

Event timing

Endurance and distance events are best held in the cool of the day, usually commencing in the early morning.

Training

A recognised running club is geared to the preparation of competitors. Ideally, a potential competitor should seek the assistance of such organizations. Entrants should be conditioned for the event. A sensible graduated training programme as discussed previously is recommended.

Diet

A well balanced diet is most important in the weeks prior to the event.

Fluid intake

500 mls of fluid should be consumed half an hour before the event. During the event, each competitor requires 100–200 mls of fluid to be taken at no more than 20 minute intervals.

The fluid consumed can be water. However, glucose and low concentration salt solutions are used by some competitors. Water and glucose are more important than salt during the race. The body tolerates and absorbs glucose containing solutions of concentrations less than 2.5% without the runner "feeling heavy in the stomach" or uncomfortable. More recently, short chain glucose polymers have been developed and are structured to be used in stronger concentrations than an equivalent quantity of glucose. These are more easily absorbed and are relatively free of the abdominal discomfort highlighted above.

Who should not compete

1 Persons with muscle or joint injuries that have not completely healed.

2 The unconditioned, unfit, untrained or unprepared person.

3 Any person who has had a fever or a significant illness within the week prior to the event. This includes the person who has had vomiting or diarrhoea in the two days prior to or on the day of the event.

References:

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A. Kretch, R. Grogan et al
1980 Melbourne Marathon Study. Medical Journal of Australia 8:22 1984 pp. 809–814.

Sydney to Surf Fun Run — Protocol for collapsed casualties in medical centres. Dr K. Abraham, Royal Prince Alfred Hospital, Personal Communication.

Exertional Heart Illness. ASMF Lecture, Dr P. Larkins August 1988, Prince Henry's Hospital Melbourne.

6.1
Treat a soft tissue injury to a knee

Check-list	Tick
Preparation and application of an ice pack	
Sit or lie the patient down.	
Soak a dressing in cold water. (Use a small hand towel if the area is large.)	
Lightly wring out the dressing.	
Place a quantity of chipped ice in the centre of the dressing. (Proprietary ice packs are excellent. The manufacturer's directions must be followed. But they are more expensive than ice.)	
Fold the edges of the dressing so that the ice chips are contained.	
Place the ice pack on the area requiring treatment. (Maximum application time is 20 minutes in any one treatment.)	
Apply firm pressure to the ice pack on the part without compromising circulation. (Patient to apply pressure if practical, or secure with a conforming bandage.)	
Elevate the injured part.	
Application of figure of eight bandage to a knee	
Apply a pressure bandage to the area after ice pack removed. (Ensure that circulation is not restricted.)	
Sit the patient down.	
Position yourself in front of the patient.	
Flex the patient's leg to form a right angle.	
Support the part in position.Lay the outer side of bandage across the inside of the joint. (Use a 7.5 cm bandage. Bandage is applied from within outwards. Outside of bandage is applied to the part.)	
Take two complete straight turns around the knee.	
Take a spiral turn around the upper section of the lower leg close to the knee joint.	

Check-list	Tick
Cross the bandage over the inside of the knee.	
Take a turn around the lower thigh close to the knee.	
Take subsequent turns alternately below and above the knee. (Cover ⅔rd of the bandage with each subsequent turn. Bandage must completely cover the dressing.)	
Secure the bandage. (Secure above the knee. Secure on the outside of the leg. Secure with adhesive tape or a small safety pin.)	
Check for signs of circulatory restriction on the bandaged leg. (Check the foot pulse.)	
Maintain elevation of limb.	
If a fracture is suspected, immobilise as a fractured patella. (This should be performed if a fracture is suspected following history and examination.)	

Practical skill mastered

Signed: .....

Date: .....

SECTION B
MODULE 7

Lifting and carrying patients

OBJECTIVE On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module check-lists) the St John member will be able to apply one or more of these skills to the section's practical incident:

Practical skills

7.1 Prepare a stretcher.

7.2 Lift and position a patient onto a stretcher using the Fore and Aft method.

7.3 Lift a patient onto a stretcher using a Jordon lifting frame.

7.4 Secure a patient to a stretcher or Jordon lifting frame.

7.5 Perform a Fore and Aft chair lift — two persons.

7.6 Transport a patient on a stretcher.

7.7 Lift a patient using a Flat Lift (Horizontal).

7.8 Use the Pick-a-Back method to lift a patient.

7.9 Use the Cradle Lift method to move a patient.

7.10 Perform a Fireman's Lift.

7.11 Apply the Lift and Drag method to move a patient.

7.12 Use the Human Crutch method to move a patient.

7.13 Perform a Blanket Lift.

7.14 Perform a two-handed Seat Lift.

7.15 Perform a three-handed Seat Lift.

7.16 Perform a four-handed Seat Lift.

Why lift a patient?

Indications: — where the injury or illness prevents the patient moving for themselves

— where moving the patient *may* worsen the condition

— where diagnosis is uncertain or incomplete

— where a background chronic condition normally restricts patient movement.

Obviously a patient with a lower limb fracture must have fixation and elevation continued while you move them to the stretcher. Generally your initial assessment and management of an injury before moving will dictate the need to carry the patient and the type of carry appropriate.

However, some more thought is required when considering the overall condition of the patient. *Any* effort on the part of the patient will increase the cardiac and respiratory requirements. Any walking will entail an upright stance. So any patient with an illness or injury having the *possibility* of respiratory, cardiac, conscious level or sense of balance symptoms must not be *allowed* to walk — even a short distance. Even if the patient does *not* collapse when stood up, your clinical observations taken when the patient resumes a position of rest on the stretcher will almost certainly show an increase in heart rate/respiration rate. Can *you* accept that clinical deterioration as part of your management?

Thus we are compelled to lift all patients with more than minor haemorrhage, all patients with any respiratory problems, all patients with any cardio-vascular problems and all patients with any disturbance of conscious state. This list, of course, includes patients who *may* develop the shock syndrome from any causes, physical or emotional.

It is important to remember that if, before or during the lift, the patient does not feel confident and secure they become apprehensive, tense, and their cardiac and respiratory requirements increase and the whole purpose of lifting may be defeated.

Principles applied in kinetics of lifting

A Keep back straight.
B Bend knees and hips.
C Lift close as possible to weight.
D Lift with arms straight.
E Lift with a smooth even movement.
F Place feet in direction of movement.
G Keep feet straight and apart.
H Avoid twisting spine.
I Hold weight securely.

Lifting: do's and don'ts:

Do's

a Do lift by bending your hips and knees while keeping your spine straight.

b Do lift with your feet straight and one foot forward.

c Do place your feet in the direction of the movement which is to follow the lift. Avoid carrying with the torso twisted on the pelvis. This will not always be possible in passages or on narrow staircases and/or other tight places but great care should be taken to avoid sudden twists.

d Do lift with short leverage; in other words, get as near to the weight as possible.

e Do hold securely using the fingers as a hook.

f Do bend your knees and lift with the arms straight. Carry also with the arms straight.

g Do make smooth movements and continue to breathe easily.

Don'ts

a Don't lift with a curved spine; this may strain your back.

b Don't lift with your feet out.

c Don't lift until your feet are in the correct position for the movement which is to follow the lift.

d Don't lift with a long leverage; it increases the strain on you and you may lose your balance.

e Don't grip by fiercely clenching the fist.

f Don't lift by bending your back.

g Don't make sudden or jerking movements; that is the way to make the muscles tense and liable to injury.

7.1
Prepare a stretcher

Check-list	Tick
Unfold stretcher (if applicable).	
Test all support structures for tightness.	
Lie on the stretcher yourself to test for its stability.	
Blanket the stretcher using one or two blankets as per the diagram in *Australian First Aid*, SJAA 1984, p.405.	

Practical skill mastered

Signed: .....

Date: .....

7.2

Lift and position a patient onto a stretcher using the fore and aft method

Check-list	Tick
Explanation to patient Reassure patient. Cover patient with blanket.	
Prepare stretcher Position close to patient. Correct height.	
Prepare to lift A Member behind patient: — Sit patient up — Support patient from behind — Reach under patient's arms, grasp forearm and place across chest. B Member adjacent to patient's thigh: — Grasp under patient's knees and small of back — Squat in preparation to lift.	
Lift patient Member A takes weight. Both lift together slowly. Use correct lifting technique.	
Carry patient to stretcher Avoid hazards.	
Place patient on stretcher Members lower together slowly.	
Position patient Position patient appropriate to condition and comfort.	

Practical skill mastered

Signed: .....

Date: .....

7.3

Lift a patient onto a stretcher using a Jordon lifting frame

Check-list	Tick
Position patient Patient's arm should be placed along side of body. Legs together.	
Position frame Place frame around. Top lug in line with patient's ear.	
Position and secure gliders Position broad glider. Secure glider to frame. Adjust tension as required.	
Prepare stretcher Position close to patient.	
Lift patient on frame Members squat at each end of frame. Coordinated lift. Correct lifting technique.	
Load frame on stretcher Lower frame to stretcher. Ensure frame is positioned. Cover patient with blanket.	

Practical skill mastered

Signed: .....

Date: .....

7.4

Secure a patient to a stretcher or Jordon lifting frame

Check-list	Tick
Explain procedure to patient. Tie two broad bandages together with a reef knot; make four of these double bandages.	

Check-list	Tick
Tie the patient to the stretcher with bandages at the level of shoulders, hips, mid-thigh, calves. Tie the bandages at the side of the stretcher with reef knots. Check that the bandages are: — firm enough to prevent the patient slipping — not so tight as to be uncomfortable.	

Practical skill mastered

Signed: .....

Date: .....

7.5

Perform a fore and aft chair lift — two person

Check-list	Tick
Prepare equipment — Chair Select a strong chair. **Explain to patient what is going to happen** Patient instructed not to help. **Assist patient to chair** Position patient on chair. **Prepare to lift** A Member behind chair: — Grasp the back of chair. B Member in front of chair with back to patient: — Kneel to grasp front legs of chair. **Lift patient** Both members lift together. Use correct lifting technique.	

Practical skill mastered

Signed: .....

Date: .....

7.6

Transport a patient on a stretcher

Check-list	Tick
Explain procedure to the patient. Make sure that the patient is secure, comfortable and warm. Ask a bystander to run ahead and open gates, etc. Kneel beside the stretcher poles, get a firm grip on the stretcher, and make sure that all stretcher bearers stand up at the same time. Stand up and make sure that you are comfortable with the weight you are carrying before moving off. For *two* stretcher bearers: — Move off out of step, but at the same pace. For *three* stretcher bearers: — The two end bearers start off on the inside leg. For *four* stretcher bearers: — Move off from the inside leg first, at the same pace. — If possible, another first aider or even a relative of the patient should walk beside the stretcher.	

Practical skill mastered

Signed: .....

Date: .....

7.7

Flat lift (horizontal)

Check-list	Tick
Prepare patient Explain procedure (if conscious). Maintain patient's modesty. **Position patient** Lying flat on back; support limbs (if required). **St John member 1** Position at head: — Level with shoulder, one arm under patient's neck. — One arm under patient's back. — Conscious patient holds onto St John member's shoulder by gripping own hand. **St John member 2** Position at hips: — Same side as member 1. — One arm alongside member 1 in arch of patient's back. — One arm under patient's thighs. Lift: — Both members together. — High onto members' chests with arms bent. — Patient may hold onto member 1. — Member at head end observe patient.	

Practical skill mastered

Signed: .....

Date: .....

7.8

Use the pick-a-back method to lift a patient

(As per AFA 394)

Practical skill mastered

Signed: .....

Date: .....

7.9

Use the cradle lift method to move a patient

(As per AFA 392)

Practical skill mastered

Signed: .....

Date: .....

7.10

Perform a fireman's lift

(As per AFA 396)

Practical skill mastered

Signed: .....

Date: .....

7.11

Apply the lift and drag method to move a patient

(As per AFA 397)

Practical skill mastered

Signed: .....

Date: .....

7.12

Use the human crutch method to move a patient

(As per AFA 393)

Practical skill mastered

Signed: .....

Date: .....

7.13

Perform a blanket lift

(As per AFA 406)

Practical skill mastered

Signed: .....

Date: .....

7.14

Perform a two-handed seat lift

(As per AFA 401)

Practical skill mastered

Signed: .....

Date: .....

7.15

Perform a three-handed seat lift

(As per AFA 400)

Practical skill mastered

Signed: .....

Date: .....

7.16

Perform a four-handed seat

(As per AFA 399)

Practical skill mastered

Signed: .....

Date: .....

SECTION B
MODULE 8

Medical emergencies

OBJECTIVE On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module check-lists) the St John member will be able to apply one or more of these skills to the section's practical incident:

Practical skills

8.1 Emergency care of a patient with anaphylactic shock or severe throat swelling.

8.2 Emergency care of the patient after a cerebro-vascular accident.

8.3 Emergency care of the patient during and after an epileptic seizure.

8.4 Emergency care of a patient after an infant febrile convulsion.

8.5 Emergency care of a patient with emotional overbreathing.

Stores

— First aid kit
— Ice packs or equivalent
— Soft bag resuscitator
— Oxygen equipment if approved in your state.

Pre-requisite

Review "The Nervous System and Unconsciousness" in 1988 St John Ambulance Australia Skills Maintenance and Re-Examination Programme.

8.1

Emergency care of a patient with anaphylactic shock

Note: Anaphylactic shock is a sudden, overwhelming and often fatal allergic reaction, usually to an insect bite or a drug, e.g. penicillin.

It may have happened before. The patient becomes ill over several minutes, with:—

— swelling of face, mouth, tongue
— increasing shortness of breath
— palpitations, possible cardiac arrest.

Check-list	Tick
Recognise problem: Take a history of this attack and previous attacks.	
Stop symptoms becoming worse: Ring for urgent medical aid. Patient may have own medications, and need help to use them.	
Note: Anxiety about the symptoms can make the reaction worse: Rest patient propped forward. Loosen tight clothing. Apply ice pack around throat.	
Prepare oxygen and suction equipment.	
Check vital signs: Respiration Pulse Colour	
Give oxygen if available. Assist breathing if necessary.	
E.A.R. and C.P.R. may be needed: Suck mucus from airway of patient who can't swallow.	
Continue to reassure casualty and monitor vital signs.	
Record all observations.	

Practical skill mastered

Signed: .....

Date: .....

8.2

Emergency care of patient after a cerebro-vascular accident

Note: Cerebro-vascular accident is also referred to as *CVA* or a *stroke.*

Comments: CVA is more common in older people with high blood pressure, and in smokers.
CVA may occur as:
— sudden loss of consciousness
— sudden loss of strength, movement or feeling to one or more areas of the body.

Check-list	Tick
Recognise problem Take a history of this incident. Ask about previous medical problems.	
Check for dangers Full DRABC and coma/lateral position if patient is unconscious. If patient is conscious, keep well supported, lying or sitting, with the head forward.	
Airway care Regular airway checks. Note: A CVA patient who has trouble talking may also have trouble swallowing their saliva.	
Physical assessment Assess movement of all limbs and both sides of face. Assess conscious state. Assess vital signs: — pulse — respirations. Check pupils and conscious state. Note: A CVA may get worse or improve over several hours.	
Prevent further damage Seek urgent medical aid. Continue to check pressure areas in limbs which are paralysed.	
Records Write everything down and hand records on to further aid.	

Practical skill mastered

Signed: .....

Date: .....

8.3

Emergency care of a patient during and after an epileptic seizure

Check-list	Tick
Prevent further damage during fit: Keep bystanders away from patient. Do *not* attempt to restrain patient's movements. Remove dangerous objects from vicinity. Call for medical aid. Note duration of fit. Note which parts of the body are twitching or shaking.	
Protect patient after fit Check and clear airway. Check breathing and circulation. Place patient in coma/lateral position. Check pulse and respiration. Check pupils and conscious state. Check body for signs of injury, and treat injuries. Check pockets for patient identification. Re-check ABC until patient wakes up. Note: Duration of unconsciousness.	
When patient has recovered Keep patient comfortable. Continue observations. Take a history of previous fits, epileptic medication, what started this fit. Note: Epileptics may have a fit if they miss a tablet, have too much alcohol, have a fever, or become upset. An epileptic can have several fits in a short time. Encourage the patient to go on to further medical aid, or at least wait until someone can take him home.	
Records Write down all observations.	

Practical skill mastered

Signed: .....

Date: .....

8.4

Emergency care of a patient after an infant febrile convulsion

Note: A fit is called an infant febrile convulsion if it occurs in *a child* aged between 6 months and 6 years, who has a *fever*.

Check-list	Tick
While the child is fitting: Keep the child away from hard objects and furniture. Note: Duration of fit. Note: Which parts of the body are twitching. Assessment after the fit: Check and clear airway. Check breathing and circulation; perform C.P.R. and/or E.A.R. if necessary. Assess conscious state and pupils. Note: Duration of any unconsciousness after fitting stops. Keep child cool: Remove all clothing. Fan the child, by hand or with an electric fan, until the body temperature cools (to touch, or via thermometer). Note: Giving the child a cool bath or a sponge is no longer thought necessary. **Seek medical aid** Write down all observations and hand them over to medical attendants. Note: Medical aid is essential: — in case of further fits — to find out the cause of the fever — to rule out meningitis.	

Practical skill mastered

Signed: .....

Date: .....

8.5

Emergency care of a patient with emotional overbreathing

Emotional overbreathing occurs when a person becomes overexcited.

The symptoms and signs are:
— patient is obviously distressed and short of breath
— may complain of numbness around lips
— may complain of cramp in hands and feet.

Note: Cramps in hand and feet are due to low carbon dioxide levels in the blood.

Check-list	Tick
Help patient relax: Rest the patient. Remove all unnecessary people from the scene. Reassure the patient often. Check pulse and respiration rate. Increase the carbon dioxide in the air the patient breathes: Place a large, clean, dry paper bag over the patient's mouth. Encourage the patient to take deep and regular breaths until the symptoms ease. Recheck pulse and respiration. Note: If the symptoms don't settle, there may be another problem present, e.g. asthma. **Follow up** When the patient calms down, talk gently about what may have started this attack. Make sure the patient goes home with a friend. **Records** Record all observations made and treatment given.	

Practical skill mastered

Signed: .....

Date: .....

SECTION B
'TREATMENT NOTES'

Section B completed

— satisfactory standard obtained

Signed: .....

Date: .....

INDEX

Subject