Burn Therapy Workbook

$10.00

Sunrise Plain Communities Service
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Based on the research of John W. Keim

By John W. Keim

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The methods explained within this educational booklet are the sole creation of John W. Keim. Over thirty years of experience and trial and error have made this information available in an educational format. The goal of this program is to reduce the suffering of mankind. These methods work on humans and animals alike. This education is for the average family as well as the professionals in the field of burn therapy. Every family needs to recognize the seriousness of burns and be able to act in a matter of seconds and know when to call for emergency help. Every healthcare professional must have the goal of easing the victims pain, and maximizing the healing potential.

Disclaimer

This educational booklet is not intended to override medical help. If anything, the goal of this program is to act as a complimentary therapy to standard medical care. Medical care is often needed to save the lives of those who have been burned. These methods have not been approved or tested by the FDA for safety or effectiveness. Burns are serious; contact your doctor before trying the treatment methods in this booklet!

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Under the auspices of the Sunrise Plain Community Service

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1. Stop The Flame

A. 1st choice Water or Milk.

B. Smother with blankets, carpets or flour.

C. Stop, Drop and Roll (in grass is good choice) (use puddles of water if nothing else is available).

2. Fire Extinguishers

A. Know what is in the extinguisher.

-Inhaling tetrachloride fumes are deadly.

-Avoid direct spray of powder in face.

-Inhaling flames or powder is life threatening.

-Extinguishers do not cool combustible material.

-Highly heated materials will burst into flames even after extinguisher has put them out.

3. After Flame is Extinguished

A. Cool burn immediately with cool water.

-Seconds count, burns keep penetrating deeper.

-**Do not remove shoes or clothing.**

-**1st** immerse burn under water, or flood with water

(then very carefully remove shoes and clothing)

B. Cool burn again up to 30 minutes or longer.

1. Explosion drive heat deeper into the body. These cases usually require longer cooling to relieve the pain.

C. Clarifying the debate on cooling.

1. Some burn units and fire departments tell people "DO NOT COOL".

2. Their reason is because it slows circulation retarding the healing process.

3. They recommend covering the body with a dry clean cloth.

4. These patients suffer severe pain.

NOTES

D. Studies have been done to see the difference in the healing process.

1. Studies as published in Rescue Service the cooling of burn victims prior to dressing or treatment at a hospital has established itself as an immediate course of action for burn injuries.

2. This simple procedure interrupts the continuing effect of the heat and results in considerable reduction of pain.

E. Cold water treatment of certain risk patients may lead to excessive cooling resulting in a lack of circulation.

1. Some burn specialists use this observation to refuse the cooling of the burn.

F. One of the main factors of benefit in the cooling the burn is to stop further heat damage.

1. Therefore preventing further injury to the skin and muscle tissue from the after burn.

G. Where cooling is omitted the effect of this after burn can quickly change a second degree burn into a third degree damage with loss of sensibility.

1. Excessive cooling can result into an increased leakage of the capillaries resulting in the development of edema, low pressure due to blood vessel dilatation and finally to Acute Respiratory Distress Syndrome.

A. ARDS is a life threatening condition, often fatal, requiring mechanical ventilation and admission to an intensive care unit.

B. Symptoms are shortness of breath, rapid heart beat and occasional confusion resulting from low oxygen levels. The exchange of gas in the lungs becomes abnormal reducing the ratio of oxygen in the blood.

NOTES

H. The recommended water temperature for cooling is 59 to 68 degrees .

1. The recommended range of time for cooling a burn is from 10 to 30 minutes, with tap water then begin warming the water as fast as comfortably possible. The water should not exceed 110°. This may take as long as 4 to 6 hours depending on the type of burn, and what percentage of the body is affected.

I. The cooling can be accomplished by placing water soaked Turkish toweling or 10 thickness of water soaked paper toweling directly on the injured body parts.

1. Once placed on the body, the toweling is not removed until the cooling has been completed.

2. A cup of water is poured on the toweling every 3 to 5 minutes or whenever the pain returns until the patient is comfortable.

3. The body or body part may be submerged in water or placed under the shower until the desired cooling has been accomplished.

4. Cooling the burn should start as soon as possible after the exposure to heat.

5. Should this be delayed it is still highly recommended since positive results can be expected even 45 to 60 minutes after the accident.

J. One must be aware of the danger of cold water treatment of a child burn victim leading to life threatening danger due to excessive cooling.

1. Relative to their body mass, children have a larger skin surface than adults.

2. This leads to a greater and faster loss of body heat while applying the cooling of the burn to infants and small children.

K. Other patients at risk of hypothermia during the cooling process.

1. Babies and infants.

2. Patients with burns over large areas of their body.

3. Older patients.

4. Patients in obvious shock.

5. Patients with multiple traumas.

6. Patients with burns on privacies.

NOTES

NOTES

L. With these high risk patients one should apply the cold water treatment most sparingly and only under complete control of all vital parts.

1. Treatment centers repeatedly receive patients with body temperatures as low as 86 degrees F.

2. This situation leads burn specialists to oppose the pre-clinical cooling of burns.

M. Using healthy volunteers observations were made by cooling various sections of the body using 68 degree water in a controlled room temperature of 68 degrees.

1. While cooling one extremity only (arm or leg) none of the volunteers showed drop in body temperature.

2. The cooling lasted 20 minutes and the temperature recorded for 60 minutes longer.

3. When both arms or both legs were cooled at the same time the body temperature was lowered with all volunteers.

4. Cooling over large body areas can trigger hypothermia (low body temperature) even with healthy volunteers. High risk groups would result in more severe consequences of hypothermia.

5. Babies and small children can be expected to reach hypothermia with a much shorter cooling application.

N. Using rectal temperature measurements proved unsuitable due to long delays in indicating the status of body heat.

1. This method often delayed a recorded drop only after 50 minutes of the cooling treatment.

2. Depending on the location of the thermometer tip in the rectum, the temperature may vary up to 1.6 degree.

NOTES

O. A special ear sensor will detect a body temperature more accurately than other body part readings.

1. Under the tongue temperature recordings are quicker in showing a body temperature change than the rectal recordings.

P. Conclusions for cooling a burn.

1. Immediate cooling has proven itself and should be continued.

2. Repeated body temperature measurements must be taken preferably using the ear.

3. At the first sign of a continuous drop the cooling must be stopped.

4. Only after stabilization of basic body temperature may the cooling be continued.

Q. Observations from the British Burn Association.

1. Cooling the burn wound as an emergency measure has been shown to be beneficial both clinically and experimentally.

2. Cooling improves tissue response to injuries derived from heat.

3. Reduces injuries from going into deeper burn.

4. Reduces inflammation and blood vessel destruction.

5. Less tissue death and scarring.

6. Reduces pain and discomfort.

7. Reduced mortality (death of mammals) in experimental full thickness burn from 64.5% to 2.58%

4-A. Chemical Burns — Acid pH<3

A. Neutralize acid with baking soda.

B. Flush with water.

C. Repeat steps A & B till you have totally diluted the acid on the victim.

D. In low PH burns the skin is dry and leathery.

4-B. Chemical Burns - Alkaline pH>13

NOTES

A. Alkaline chemicals = potassium hydroxide or sodium hydroxide (which is lye).

B. Neutralize the alkali with vinegar.

-Although, vinegar builds heat, this is detrimental if left on too long.

-Flush off vinegar with water immediately.

-Repeat vinegar and water flush till alkali has been neutralized. It is neutralized when skin is no longer slippery.

-In high PH burns the skin is gray, soupy, and slippery.

C. PHs

Stomach Acid	.5-2.5
Battery Acid	1
Peroxide	1-5
Borax	9
Antifreeze	10.5
Ammonia	11
Lye	13
Cement	13

4-C. Ash Burns

Ashes will stick onto burns. *Do not wipe the ashes off!* Doing so will instantly drive the burn deeper. Flush the ashes off with full flow running water. This will activate the small amount of lye that is in the ash. But it will also rinse it off. Keep cooling the burn with running water. Never soak ash burns in standing water. Mix half and half water and apple cider vinegar in a bowl. Slosh the burn in this mixture and rinse it off with the running water. Repeat until the pain is gone.

5. Road Burns

A. Cool with water.

-Do not manually remove foreign material by scrubbing!!!!

B. Pack the burn with burdock leaf poultice.

C. Remove poultice within 2 hours.

-Some of the foreign material will cling to the leaves.

Do not scrub wound to remove debris.

-Repeat burdock poultice every 2 hours till wound is clean.

6. Hot Tar Burns

A. Treat same as regular burns.

-Cool as needed, etc.

-Do not attempt to remove tar.

-Keep dressing same as regular burns until tar dissolves and removes little by little with each dressing.

7. Sun Burns

A. If minor, apply dressing with B & W ointment and wrap with gauze.

B. If second degree or more severe, dress same as regular burn.

C. Mixing one cup of apple cider vinegar into two gallons of water can make a very soothing soak for sunburns.

8. Electrical Burns

A. Monitor vital functions of the brain, heart and lungs.

-Electricity that passes through the body affects all body systems.

B. The body will have an entrance and exit site.

-Treat both sites like a regular burn.

C. Victim may need artificial respiration.

D. Body should be discharged after any electrical shock, including lightning, by putting feet and legs into a hole, cover with dirt, pour a pail of warm water into the hole. Leave feet in for 1/2 hour or more.

NOTES

9. Smoke and Flame Scorched Lungs

NOTES

A. Oxygen needed!!! Transport!!

B. How to know.

-Oxygen should be monitored, if it starts dropping quickly call 911.

-Was the victim inside a burning building?

-Did flames pass by the victim's face?

-Was smoke inhaled?

-Is hair in nose singed?

-Back of throat is red.

-Change in sound of voice. Breathe deeply, see if there is lung pain.

-Rapid painful breathing.

-Carbon Monoxide poisoning causes flu like symptoms.

-Pulse above 100 beat per min. (16 per 10 sec.)

-These indicate internal damage and transport is needed ASAP!!

Evaluating the Severity of the Burn.

10-A. Percentage of body burn

-One total arm = 9%

-One total leg = 18%

-Full Back with Buttocks = 18%

-Abdomen and Chest = 18%

-Head and Neck = 9%

B. Add together the different areas of the victim's burn.

-Example: Victim has burned 1 full leg and 1/2 of the other leg plus 1/4 of an arm. 1 leg (18%) + 1/2 leg (9%) + 1/4 arm (2.25%) = 29.25% body burn.

C. Palmer Method– Use victim's hand size including fingers. Place over all burned areas. One hand size equals approximately 1%.

(Statistics shown with conventional methods are 50% body burn equals 50% mortality.)

10-B Degree of Burn

NOTES

A. 1st Degree (Through Epidermis)

-**Painful** and redness.

-May have some swelling.

-Does **not** have blisters.

-Victim **can** feel touch sensation on burn.

-What may appear as a first degree burn may blister and actually be a second degree burn.

-Victim may have removed clothing and the first layer of skin come off with the clothing. This would make it look like there are no blisters.

-Be sure you evaluate the burn correctly so you do not confuse a 1st degree burn with a 2nd degree burn!!

-1st degree burns are not life threatening unless a large area of the body is involved.

B. 2nd Degree. (Through Epidermis & Dermis)

-**Painful** and redness (Same as 1st degree).

-Victim can feel touch sensation on burn.

-**Blistering** (This is the main difference between 1st degree and 2nd degree).

-The outer layers of skin are destroyed.

Skin healing can take place from the deeper layers of skin cells that survived the burn.

C. 3rd Degree. (Through Epidermis, Dermis, & Hypodermis)

-These burns are either white or black.

-Painless and touch sensation is lacking.

-This burn has destroyed the full thickness of the skin and often the underlying fat layer as well.

-In these cases skin needs to heal in from the sides of the wound. Sometimes there are a few live cells left at the roots of the hair follicles and not all of the fat layer has been destroyed. In this case skin will grow from the bottom up like 2nd degree burns.

D. 4th Degree.

-Burn is into muscle tissue.

E. 5th Degree.

-Burn is into bone.

11. A Major Burn

-Any burn that involves 10% or more.

-Burn that cross joints.

-Burn that goes entirely around a limb or trunk.

-Burns involving hands, face, genital area, eye lid or eyes.

-All inhaled hot gas burns even though they may not appear major.

-Any burn in the young or elderly.

12.Evaluate Over All Health of Victim

Very Important.

This will significantly effect speed of healing.

A. Under nourished bodies.

-Thin people ribs showing, sunken cheeks and eyes, low muscle tone.

B. Dark circles around the eyes or under eye pockets with edema.

C. Swollen tonsils and other lymph nodes.

D. Any other diagnosed disease.

Debilitated bodies have less chance of survival.

If the victim looks sickly, do not attempt the case without doctor supervision.

13. Always Wear Gloves!!

-Wear one pair to remove the bandage.

-Wear the 2nd pair to clean wound.

-Wear the 3rd pair to apply the fresh bandage.

NOTES

14. Preparing the B & W Ointment

NOTES

A. Stir the ointment till a creamy consistency.

-Do not heat to soften. This may cause ingredients to separate.

-Put the salve on the smooth side of the leaf.

C. Burn should be covered approximately 1/8th inch.

15. Preparing the Leaves

A. Size and Quality of Leaves

-Get leaves that are not close to the road or polluted areas.

-Best size is about 6-8 inches.

(If they get too large there are too many hard ribs.)

(Too small is not an issue if it is just a small burn although for large areas small is not sufficient because of easy sliding and not much covering.)

-Do not use leaves that are moldy or just smell moldy.

B. **Scald the leaves in boiling water.**

-Submerge the leaves the water 3 to 4 inches deep. Leave them until **thoroughly saturated.**

-Dried leaves don't take as long to scald as fresh.

-Let scalded leaves cool to lower temperature than the body.

-Do not allow them to dry out. (Only pat dry enough so they are not dripping.

C. Completely cover the wound with the leaves.

-Put the smooth side of the leaf against the skin. Never put the back side with the ribs against the skin.

-Overlap the leaves approximately 1/4th inch.

-Overlapping too much causes leaves to fall off easier.

-Overlapping too little prevents 100% coverage.

Be sure you have covered the wound 100% with salve and leaves!!!

16. Securing the Leaves with Gauze

A. Size of Gauze to use.

-2" = infant's hands

-3-4" = arms

-6" = legs, upper trunk and head

(Using wide gauze for small areas is too awkward and may irritate the wound.)

(Using gauze too narrow for large areas may lead to slipping of the wrapping.)

Use common sense.

B-1. Wrap burn with slight compression.

-1-3 layers of gauze is sufficient.

-You Do Not Want The Wrapping to Slide! Yet you do not want the wrap too tight to cause discomfort to the victim.

B-2. Ensuring the wrapping does not slide.

-While wrapping gauze, use smaller diameter body contours any where possible to anchor wrap.

-Put a circled tape around these more narrow body contours to secure gauze. If this causes discomfort skip this and secure these areas later.

-Also wrap gauze all the way up and around shoulders or other areas for the body if needed to insure not shifting or sliding of the wrapping.

-Spiral wrapping, up and down for at least 4 layers of wrap.

-Dressings that slide are uncomfortable and cause incomplete covering of the wound.

NOTES

B-3. Taping gauze.

-Use small pieces of tape to secure the end of the gauze.

-Do not tape to the skin if you can help it.

-Sometimes you need to put long pieces of tape across the gauze to keep the wrapping from sliding. (Example: Gauze is wrapped around the trunk or head of the body then you put long pieces of tape up and down crossing all the overlaps of the gauze).

-Or use Tubular Stretch Netting over the dressing.

17. ABD Pads and Moisture Barrier

A. Put ABD pad on top of the gauze and just enough tape to secure it without causing discomfort.

-Often the tape can be a little tighter than the gauze layer.

-You will need to wrap tape all around the circumference of the body part (arm, leg, trunk, etc.) to secure the ABD and prevent sliding.

-ABD pad is for cushioning and protection from any bumping. Also for absorption of extra body fluids.

B. Now cover the total wound with the Moisture Barrier (Chair Pad).

-This to finish sealing off the wound and to prevent moisture loss and dehydration. Also to prevent air from getting to the wound and causing infection.

-Make sure the chair pad cover a minimum of 2" **over** all sides of the burn. We prefer to cover all the gauze plus some.

-The chair pad should be long enough to secure the wrapping at the smaller diameters and contours for the body to prevent sliding.

-Wrap tape around the chair pad every 3-4 inches with slight compression to avoid shifting. Put extra tape at the smaller contours.

18. Dressing Fingers, Toes, Joints & Breast

A. Fingers and toes need to be wrapped individually if the skin was burned between them.

-The will **grow together** if you do not.

-Joints need to be straightened or exercised (see Physical Therapy)

NOTES

B. Children and victims that can not keep their fingers straight need to have a splint put on to insure the skin heals the right size.

-A piece of thin plexiglass works for a splint. Plexiglass can be bent with a heat gun to any shape you desire.

-After wrapping is all done with the moisture barrier and everything, put splint on the **back** of the hand and wrap on tight with gauze to straighten out fingers.

-Palms also need to be flattened. (See Physical Therapy).

-To flatten a palm, use 2 pieces of plexiglass. Cust to exact size of hand, so that when you wrap the hand it is not cupped from thumb side to little finger side.

C. Breast

-Place leaves under the breast right up to where the abdomen stops and the breast starts to protrude. This is to insure that the breast does not grow against the abdomen.

19. Physical Therapy

A. While the wounds are undressed is the best time to do therapy. Although children heal fast and is better to exercise more often.

-Although do not leave wound undressed longer than you have to. Especially large areas.

-If you do therapy while wrapped, this may cause shifting of the leaves, gauze, or ABD.

-All joints including neck, jaw and palms or any other restricted areas must be stretched and exercised.

-Give **special attention** to the **fingers and hand**.

-Make sure nothing heals with restrictions.

20. Burns on the Face

A. Put salve and leaves same as other burns.

-If back of ear is burned make sure to put leaves between ear and head.

Note: Ear and nose are cartilage with no muscle tissue and if skin is completely burned off skin grafting may be required.

NOTES

B. Wrap with 6" gauze. You must wrap the complete head and neck.

-If eye lids and lips are burned keep them closed and cover them up.

-You may cut a very small hole for the edge of the mouth just enough to fit a straw in for fluids.

-Cut holes for each nostril. Tape gauze open to insure nostril holes do not shut while sleeping.

-If eyes and lips are not burned (or they have already healed) cut a straight slit to open them. Use small pieces of tape to keep them open.

C. Taping the gauze to keep it from shifting.

-Put long pieces of tape horizontal, crossing all the overlaps of gauze, from the top of the head all the way down the neck.

-These long tape pieces should be put on every 2" around the head and neck.

-On the face you start the long tape pieces below the eye unless the eye is shut anyway.

D. Put "Tubular Stretch Net" over the gauze.

-It takes two people to put this on .

Note: Head wrap is now done. We do not use ABD pads or chair pads for the head.

21. Removing the Bandage and Debriding the Wound

A. Cut off and discard all bandages.

-Reusing any of the old bandage may cause infection.

-Lift bandage straight away from wounds. **Do not slide off or try to wipe off debris or extra salve with it!**

NOTES

Debriding

B. Use 4"x4"x4ply gauze pads

-Open pads to 4"x8"

-Fold long ways twice.

-Make horseshoe shape.

-Dip middle of pad into a bowl of Extra Virgin Cold Pressed Olive Oil.

-Stretch Olive Oil saturated pad tight.

-Gently wipe across burn or wound once on one side and once on other side. Then discard. Repeat until wound is clean. Do not pull or rub on wound or debris.

-Just take off what is loose. Leave the rest. It will come off next time.

-Be sure to work Olive Oil under loose skin if possible. If blisters are open, press them flat to push out all fluids.

4x4s are cheap.

Do not worry how many you use.

Improperly cleaning will lead to INFECTION!

22. Evaluating the Wound Between Dressing

A. Inspect everything between dressings.

1. As you undress old wrapping, is every areas of the wound still covered or did wrappings shift?
2. Smell for infection.

If wound smells bad or like anything other than B&W salve get wound evaluated by another professional.

NOTES

3. Is there inflammation?

There can be natural healing inflammation. (This is needed for healing) or inflammation from infection. <u>You must learn the difference.</u>

4. Is there any reaction or sensitivity to the salve or leaf?

A. Leaf sensitivity = red shiny rash, pimples surrounding the wound, or pain.

Normally the leaves are scalded in boiling water until leaves are saturated. For sensitive patients the leaves need to be scalded longer or scalded several times in fresh water each time to release more of the properties concealed within the leaf.

*Change to a different leaf.

Good subsititure: Plaintain, Grape, Lambs Quarter, Grass, Dandelion, Lettuce or Alfalfa sprouts.

Note: Lettuce and Alfalfa sprouts are tender and do not need to be scalded. Lettuce should be washed and Alfalfa sprouts need to be fresh and not moldy from lack or rinsing.

Bad substitute: all night shades (potato, tomatoes, peppers, egg plant, etc.), rhubarb, poke berry, spinach, smart weed, poison ivy/ oak, stinging nettles or cabbage.

Salve sensitivity = burning or pain.

*Change to a different body sealing **petroleum free** salve or cream. Good substitute: Calm Cream or Self Heal.

5. Look for red streaks. **Major Infection!!**

6. Check for dehydration. (see "Dehydration").

B. How does a healing burn look?

-First the outer edge of the burn will turn pink and redness fades away.

-After you see the perimeter of the burn changing you should see continued changes minimum every 1-3 days.

-3rd degree will get raised tissues and look like proud flesh or ground hamburger. This is new blood vessels and nerves healing in.

<u>NOTES</u>

Infection Review: Smells bad, red rash (do not confuse with leaf reaction), red streaks, inflammation (do not confuse with healing inflammation), or pain (there are many other causes of pain also. See Pain Has A Meaning").

NOTES

23. Handling Blisters

A. Do not puncture the blisters.

-Blisters are the body's method of protection from infection.

-Allow them to open on their own, unless they are too tight and are causing a lot of discomfort.

B. If blister is too tight and uncomfortable.

-If possible, puncture blister coming from underneath through live tissue.

-This will inhibit air from getting into the blister.

Open blisters are often more painful and they can become infected after opening.

If you leave the blisters, usually new skin will have started from the bottom up within 3-4 days and the blister will open by itself.

24. Trimming off the old dead tissues.

A. Do not rush taking off old tissue.

-B&W ointment and the leaves will digest and make the body release old tissues.

-A lot of the dead tissue will come off with the debriding process.

-If you see the skin is not coming off you may go ahead and trim off the loose skin.

Bacteria can start to grow under old skin if left on too long because it is hard to properly debris these areas.

Although, trimming off skin to quickly can cause more discomfort.

25. Dehydration

NOTES

This can be life threatening!!!

The bigger the burn the more danger.

A. Mild dehydration.

-Tongue is dry on the top but still moist underneath.

-50 lb. victim needs 23 oz water and 100 lb. victim needs 46 oz of water in 24 hours.

-Good idea to use electrolytes (see section E below).

B. Moderate dehydration.

-Tongue is dry on top as well as underneath.

-50 lb. victim needs 53 oz water and 100 lb. victim needs 106 oz water in 24 hours.

-This is serious and needs to be addressed right away or it will very shortly become a severe dehydration problem.

-Use electrolytes (see section E below)

C. Severe dehydration.

This is very dangerous and victim needs to be monitored around the clock.

-Very dry mouth, sunken eyes, skin very loose.

-Pinch the skin on the inside of the thigh, the skin will not readily return back to normal.

-Mentally dull, unnatural drowsiness, sluggish.

-Less of ability or strength.

-Absence of emotions.

-50 lb. victim needs 77 oz water and 100 lb. victim needs 154 oz water.

-Also use electrolytes (see section E below).

-Victim in severe dehydration can go into shock if not corrected rapidly.

D. Other things on dehydration.

-If an infant's soft spot on the skull has sunken in; dehydration is present.

-Do not take <u>any</u> stage of dehydration lightly in children and the elderly!!

-Infants can go from mild dehydration to severe dehydration in a very short time!!

-It is likely children and elderly need IV when in severe dehydration stages.

-If you can not get victim to drink enough water try water enemas. Infants absorb water rapidly from the colon.

E. Electrolytes for Dehydration.

-Emergency home prepared mix: 1 quart water, 8 tsp. sugar, 1/2 tsp. salt and 1/2 tsp. soda.

-Commercial prepared solution: Pedialyte

-Preferred electrolytes: Emergen-C (Alacer Co.) or Elctro Stamina (Trace Mineral Research) Available in health food stores.

F. Dehydration Maintenance.

-After rehydration continue the fluids recommended for mild dehydration.

-When body is running a fever **or** is in a hot environment; then use 40% in 2nd degree and 70% in 3rd degree more fluids than is recommended for mild dehydration.

-When body is running a fever (>102) **and** in a hot environment (90F in the shade) use 65%, in 2nd degree and 85%, in 3rd degree, more than recommended for mild dehydration.

Watch for signs of dehydration <u>everyday</u> until there is total skin coverage.

<u>NOTES</u>

26. Shock

NOTES

This is dangerous and very life threatening!!!

Caused by excessive pain, fear or loss of body fluids.

A. Signs of shock.

-Weak rapid pulse (over 100 beats per minute).

-Cool, clammy and moist skin.

-Yawning, tired, mental confusion or victim loses motivation of life.

-Loss of consciousness.

-Pupils do not constrict when light is shined into them.

-Blood pressure is dangerously low.

A Person In Shock Needs Medical Attention ASAP!!!

27. First Aid for Shock

This is NOT to replace seeking medical attention, only to buy the victim time till paramedics get there.

A. Place victim on their back on a slant board with the head about 20 degree lower than the legs.

B. Wrap rubberized ace bandage, horse leg wrap, or even saran wrap tightly around the legs to force blood back into the trunk and head of the body. Arms may also be wrapped.

C. Orally use Cayenne extract and electrolytes.

Transport to Hospital ASAP!!!

28. Fever of Wounded Victims

A. Fevers are the body's natural healing response.

-Is there infection?

Make skillful decisions if fever is caused from infection.

B. Fevers are beneficial for killing viruses and bacteria.

C. Fever of over 104 degree for prolonged periods of time may cause problems.

D. Victims with fevers will lose fluids fast. Make sure there is sufficient water intake.

29. Reducing Fevers

A. We do not recommend to use non-steroid anti-inflammatory drugs (NSAID).

-NSAIDs reduce the power of the immune system and therefore retard healing and increase risk of infection.

B. Natural methods to control fever.

-Cold compresses or baths if burn allows.

-Catnip or water enemas (96-98 degree).

-Cooling peppermint tea compresses to head.

-Feverfew Tea internal.

-Homeopathic: Belladonna or Arsenicum album.

-If dehydration is present, fluids must be put in or nothing will work to take fever down.

-Also bowels must be kept open.

-Anti oxidants are also beneficial.

***Sometimes there is a loss of appetite during fevers.**

***Do not force victim to eat.**

***If he/she is not hungry it is better if he did not eat.**

***Just keep the water and electrolyte going in.**

NOTES

30. Retarded Healing

NOTES

A. Some possible reasons.

-Improperly debriding of the wound.

-Wound not completely sealed off from air.

-Diet is ladened with sugar or artificial sweeteners.

-Over dose of Tylenol.

-Antibiotic ointment covering injury.

-Victim has an overall poor health status.

31. Pain has a Meaning

When pain is present, find the cause and remove it.

A. Some causes of pain.

-Leaves are too dry and stiff.

-Wound is too dry.

-Wrapping is shifting.

-Infection.

-Reaction to the salve or leaf.

-Blister or old skin was taken off too soon.

-Inflammation.

B. To relieve the pain.

-Fix what is physically wrong with the dressing.

-Do not rely on drugs for pain control. They may weaken the immune system.

-Natural remedies for inflammation pain: CuraminHP, proteolytic enzyme, white willow bark.

-Increase circulation (see circulation).

-Keep the bowels open and empty.

-Coffee enemas.

-Increase water intake.

When a patient, child or adult, is very restless, miserable or uncomfortable administer a coffee enema. This procedure has provided relief for many.

32. Circulation

NOTES

Good circulation is a must for healing injuries!

A. Natural remedies to improve circulation.

-Herbs: Butchers Broom, Cayenne, Horse Chestnut, Bilberry, Sassafras Tea, Ginkgo Biloba, Garlic, Horseradish & Hawthorn.

-Enzymes: Nattokinase, Protease, Bromalian

-Vitamins: E, B-3 & C

-Other: Chlorophyll, Herapin (see Herapin).

33. Diet for Burn Victim

This is very important!!

A. Best Foods.

-Raw fruits, melons, berries.

-All veggies, especially green foods.

-Eggnog.

-Meat broth, fish, liver.

-Bee pollen.

-Fresh pressed juices are ideal.

-For bowels if needed: Figs, Prunes.

B. No No Foods

-Refined or processed foods.

-Refined sugar or caffeine.

-Starches: Baked goods, cooked potatoes.

34. Good Food Supplements

A. Anti oxidants and immune builders.

-Lipoic acid, grape seed, Echinacea, astragalus, Oregon grape root, olive leaf, goji and noni juices and L-Glutamine.

B. Circulation (see circulation 31).

C. Healers and Builders.

-B/F/C formula, comfrey tea, aloe vera, trace minerals, calcium (citrate, gluconate)

35. Support Needed

A. Encourage victims and their families.

-There is often a feeling of blaming themselves.

-Do not talk about how they could have prevented the fire. **In most cases they already know what they did wrong and for people to keep reminding them make them feel worse.**

-**All** people are prone to accidents.

-Do not criticize the dressings or how the burn should have been handled right after the fire.
What is done is done. You may teach them later how and why to cool the burn fast as possible after it happened.

-Also do not criticize anyone else method of treating burns. You do not know, there was no study done to prove this is the best method to treat burns. All we know is this is how we would treat a burn if we had one ourselves.

-If you inspect other fellow NHRG burn student's dressing and find a mistake, do not say anything that will make your fellow student look bad. Just say something like: This wrapping is okay but we may get a little faster healing if we did it this way....

No one is perfect.

Everyone learns with practice.

36. Legal Issues

A. You do not treat people, diagnose disease or infection, or prescribe supplements. You only teach them and make suggestions what you would do for yourself.

B. Be very careful if you are involved with minors. The law can come and take the child away from you and put you in jail for child abuse and neglect.

NOTES

37. Prepare for the Future

A. Find Support.

-Contact and try to personally know a doctor that will support and assist you when needed. You may not find one that will agree to your method but as long as you can trust him to not cause trouble.

-Have a helper: It is encouraged to have two burn caretakers working together, sharing and comparing opinions. When serious decisions need to be made, two heads are better than one.

-Know how to contact NHRG Teachers in case you are unsure of something.

Do not guess.

If you are unsure call someone that knows.

B. Have burn supplies on hand and know where they are.

-Dry fresh leaves every year and rotate your stock, not allowing them to get older than 3 years.

-Have dried back up leaves and other salve on hand in case of a reaction.

-Have minimum of enough supplies for 2-3 dressings of an averaged sized burn.
(You can get more supplies "Next Day Air" in time for the 3rd or 4th dressing.)

NOTES

38. Value of Heparin

Heparin is a product currently available in the U.S.A. It has shown to be very valuable for burn patients. It is a blood clotting preventative and can stop superficial and blister pain in minutes when applied topically and also deep pain if it is injected into the fat layer just below the skin. Intravenous infusion is the third application.

In the same accident, two men received 65% body burns. One man had conventional treatment grafting, etc. Hospital stay was three months at the cost of one million dollars, lifetime scarring and constricted body movements. The other man was treated with heparin and needed no grafting, hospital stay was one month and cost was 1/10th as much. He also had no scarring or constricted body movements.

Hopefully, heparin will get used more in the future by conventional medicine.

Dear Student,

Thank you for your time, attention and interest in learning how to care for burns so you can help your family and your fellow man heal with the least discomfort possible.

Your friend,

John W. Keim

Please send questions, comments, suggestions and testimonies to:

Sunrise Plain Communities Service

205 Graves Road

Mills, PA 16937

P.S. We are will to pay for testimonies that include progress photos and dates.

NOTES

Burn Therapy Evaluation Test

1. What is the first thing to do immediately after a burn happened (After flame has been put out)?
A. Take clothes off and cool the burn.
B. Cool the burning.
C. Put on B&W salve.
D. None of the above.

2. How often do you re-dress a burn? Every…
A. 12 hours
B. 6 hours
C. 18 hours
D. 24 hours

3. What is the main difference between a 1st and 2nd degree burn?
A. 2nd degree is red when 1st degree is not.
B. 2nd degree has blisters when 1st does not.
C. 2nd degree dehydrates faster than 1st.
D. None of the above.

4. What % 2nd degree burn should you attempt at home?
A. 10%
B. 20%
C. 30%
D. 40%

5. What is the order the dressing is done?
A. Salve, leaves, ABD, gauze, moisture barrier.
B. Leaves, salve, gauze, ABD, moisture barrier.
C. Salve, leaves, gauze, moisture barrier, ABD.
D. Salve, leaves, gauze, ABD, moisture barrier.

6. How do you properly debri with 4x4s?
A. Press 4x4 directly at the burn.
B. Wipe off in light downward motion.
C. Make 4x4 wet with olive oil so it slides.
D. None of the above.

7. How can you tell when there may be an infection?
A. Wound smells bad.
B. Victim has pain.
C. Victim has fever.
D. May have all or any combination of the above.

8. What % burn is it if 1 leg, 1/2 arm and 1/2 abdomen/chest is burned?
A. 18%
B. 24%
C. 31 1/2%
D. 36%

9. What to do if victim is going in shock?
A. Call 911.
B. Pull body in a 20% angle, head down.
C. Wrap legs to force blood to trunk/head.
D. All of the above.

10. What is the approximate temperature of the water to scald leaves?
A. Boiling.
B. 180 degree.
C. 110 degree.
D. 65 degree.

11. What is the difference between 2nd and 3rd degree burns?
A. 2nd degree has pain and 3rd does not.
B. 2nd degree there is still bottom skin left where as 3rd has no skin left.
C. 2nd degree heals from the sides in and 3rd degree only heals from the bottom up.
D. A & B.

12. How do you clean a road burn?
A. Scrub off dirt with soft wet brush.
B. Dress the wound and clean with regular debriding process between dressing.
C. Use a wet cloth and dab off dirt right away.
D. None of the above.

13. How do you handle blisters?
A. Let them open on their own.
B. Open them to prevent infection.
C. After they have opened, finish pressing out the fluids with the debriding process.
D. A & C.

Gathering Leaves And Drying For Later Use

The young leaves do not have pronounced ribs and veins like the older leaves do. While using leaves for poultices the larger ribs do not matter as much, but to place one leaf on the body at a certain area and wrapping with a slight pressure of gauze the larger veins will be pressed into the tissue of the body leaving an impression and therefore reducing circulation badly needed in healing injuries.

Therefore you need young leaves from 4" to 10" long without the pronounced ribs. Plants along roadways, alongside buildings housing fowl or livestock or any place that received chemical sprays, dust or dirty growing conditions is unacceptable.

Do not try to clean them after picking. If they are not clean before picking do not pick them. If plant is too old and the leaves too big you may cut them off at ground level; discard the old plant. A new plant will usually grow quite rapidly. Then you can harvest the second growth at the right stage.

After harvesting they need to be spread apart singularly within an hour to avoid heating. Going through a heat will discolor and reduce the value of the leaves. When they are stacked on top of each other mold will cause them to be unacceptable. You want them flat while drying instead of curled or doubled over.

Drying works well indoors if you have empty rooms with doors and windows that can be opened to allow air to circulate. If they are spread on floors you should first spread a layer of newspaper. Newspaper will help absorb the excess moisture and avoid dirt from clinging to the leaves. An attic is alright if it is free of rodents and birds. We cannot accept leaves with animal or bird droppings on them.

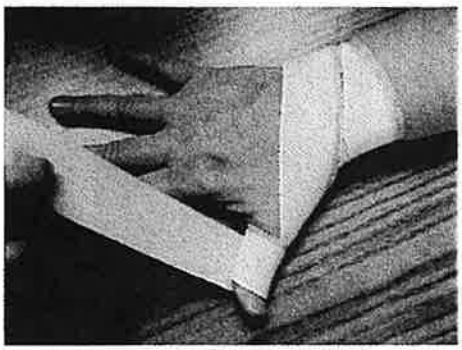
Do not dry them so dry that they will crumble, packing in pasteboard boxes with closed lids and no holes is best. Add bay leaves on top of leaves in box. They need approximately 10 percent moisture so they can be pressed into the box nice and tight, flat on top of each other. If you pack them with too much moisture they will mold. For that reason you do not want to pack them in plastic bags or plastic containers unless they are thoroughly dry.

Handout 6.7: Artzberger Hand and Finger Bandaging

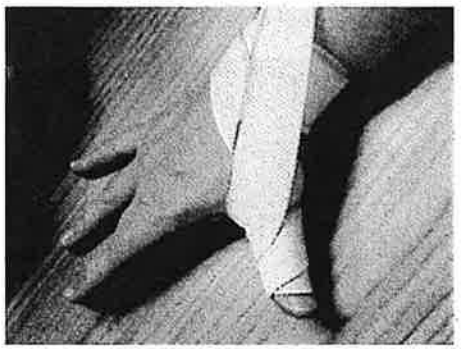
1. Use tape and hold bandage end at ulnar (lateral) side of wrist, wrap two times around wrist, spreading the bandage.

2. Come up on radial side (outer side) of thumb starting at base and angling up.

3. Do 360° wrap around thumb at base of nail.

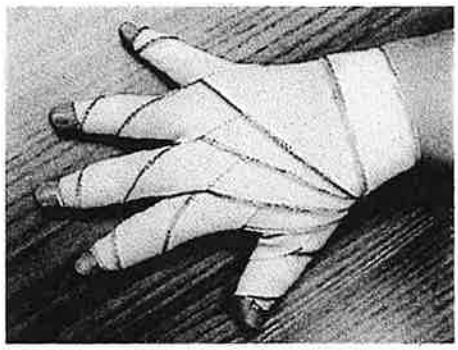


4. Continue overlapping 360° wraps to thumb web, end at lateral (ulnar) side of wrist.



5. Wrap around volar side of wrist and angle bandage up to nail bed, between the second and third fingers and do 360° wraps to finger web space, returning to lateral side of wrist.

6. Continue for each finger and end by wrapping the wrist and as far up as needed.



Step 6: Care for Wounds

Handout 6.8: Artzberger Foot and Toe Bandaging

1. Use tape and hold bandage end to outside (lateral) side of foot near little toe, wrap two times around foot, spreading the bandage.

2. Come up on radial side (outer side) of big toe starting at base and angling up and around toe at base of nail.

3. Then wrapping at 360° around big toe returning to medial side of foot.

4. Wrap around bottom of foot coming up at an angle from lateral side of foot to the nail bed of the second toe and wrap 360° around toe, returning to medial side of foot.

5. Wrap around bottom of foot coming up at an angle from lateral side of foot to the nail bed of the third toe and wrap 360° around toe, returning to medial side of foot.

6. Continue until all toes have been wrapped and then continue to wrap up the foot.

Nutritional Needs of the Child in Burn Recovery

The nutritional needs of the burned body jumps very high and very quickly. In the first 8 – 16 hours the loss of proteins, minerals and fats is amazing and often fatal. Far beyond the lost fluid, as tissue and muscle is lost the body becomes starved for Protein, Carbohydrates and Lipids (fat).

The goal of nutritional management is to maintain proper weight through proper sources of the foods the body needs to first maintain its balance and then begin to recovery. In addition to the problems of nutrition the adrenal glands, the home of the immune system, is in a potential state of shock that needs immediate help. This can be very difficult with a child and it is the reason that hospitals want to start enteral (nasal feeding tubes) feeding.

In order to provide the proper support at home it is essential that calories increase. The current formula is not consistent from hospital to hospital but the following is about average.

0–1 year: 3000 calories 1–11 year: 4000 calories 12--18 years: 5500 calories

There is no agreement as to if these formulas are correct but the simplest way of looking at burn recovery is that whole foods are the best choices as they result in the quickest recovery with the least yeast overgrowth in the new tissue.

Overfeeding has resulted in the most difficult time in weaning any burn victim off a ventilator.

Proteins: 2.5 - 4.0 grams of protein for every 3 pounds of weight. **So that 20 pound child that we used for an example in our fluid paper needs about 50 grams of protein per day.**

20 pounds divided by 3 = 6.66

Multiply 6.66 times 2.5 = about 16 ½ grams of protein every day

Multiply 6.66 times 4.0 = about 26 ½ grams of protein every day

The primary proteins should be easy to digest. Animal proteins are often very long in the intestines and should be carefully added. Pork has little value.

Beans, Nuts & Legumes

- 1/2 cup raw tofu (firm): 20 g
- **1 cup cooked lentils**: 18 g: With 8 grams of protein per 1/4-cup serving, along with plenty of fiber, iron, and slow-burning carbohydrates, there's a lot to love about lentils n
- 1 cup canned black beans: 15 g
- 1 cup canned kidney beans: 13 g

- 1 cup canned garbanzos: 12 g
- 1 cup canned pinto beans: 12 g
- **2 tablespoons smooth peanut butter: 8 g**
- **1 ounce nuts**: 7 g A 1-ounce serving of nuts offers anywhere from 4 to 7 grams of protein—and so much more. Almond butter and cashew butter come in close behind with approximately 5 grams of protein per serving. Because of their mild flavors, almond and cashew butters can be used in smoothies to add extra bulk
- **1 ounce of cooked oat 7 g**: Packed with lots of slow-burning carbohydrates and anywhere from 7 to 10 grams of protein per serving. Cook oats with milk or coconut milk for even more protein and extra calcium, toss in some chopped fruit for sweetness (and a few extra vitamins) and enjoy!

Dairy

- **1/2 cup cottage cheese: 14 g**:
- 1/2 cup ricotta cheese: 14 g
- **1 ounce Parmesan cheese: 11 g**
- 1 ounce Swiss cheese: 8 g
- 1 cup raw milk: 8 g
- 1 ounce mozzarella cheese: 7 g
- **1 ounce cheddar cheese: 7 g**:
- **1 large fresh egg: 6 g**:
- **6 ounce container Greek Yogurt 18 g**:

Meat and fish

Note that 3 ounces of meat or fish is about the size of a pack of playing cards.

- 1/2 roasted chicken breast (no skin): 27 g
- 3 ounces sockeye salmon, trout or tilapia: 23 g
- 3 ounces crab meat, lobster meat or canned clams: 20g
- 3 ounces trout: 23 g
- 3 ounce lean beef hamburger patty, broiled: 21g
- 3 oz. beef, lamb, veal: 28g

Carbohydrates: About 7 grams of carbohydrates per every 2 pounds of weight. So for our 20 pound child:

20 pounds divided by 2 = 10

10 times 7 = 70 grams of carbohydrates per day.

Carbohydrates are actually an ideal way to recover from burns but they should be healthy carbohydrates. White flour desserts, crackers, noodles and other starch heavy foods only add sugars which encourage yeast to grow. Try these top foods.

NUTRITIONAL VALUE

	Amount	Grams	Calories	Protein (G.)	Fat (G.)
DAIRY					
Butter	1/2 cup	113	810	1	92
Cheese Cheddar	1 oz.	28	115	7	9
Sweet Cream Heavy	1 cup	238	820	5	88
Half & Half	1 cup	242	315	7	28
Milk Whole	1 cup	244	150	8	8
Eggnog (Commercial)	1 cup	254	340	10	19
Ice Cream Vanilla	1 cup	133	270	5	14
Yogurt Fruit Flavored	8 oz.	227	230	10	2
Yogurt Plain	8 oz.	227	145	12	4
Lard	1 tbsp	13	115		13
Olive Oil	1 tbsp	14	125		14
FRUIT & FRUIT JUICES					
Apple 2-3/4" diam	1 apple	138	80		
Apple Juice	1 cup	1248	115		
Blueberries Sweetened	10 oz.	284	230		
Cherries Sweet	10 cherries	68	50	1	1
Cranberry Juice Sweetened	1 cup	253	145		
Grapefruit Juice Sweetened	1 cup	250	115	1	
Grape Juice undiluted	6 oz.	216	385	1	1
Orange Juice Unsweetened	1 cup	249	110	2	
Pears w/ Heavy Syrup	1 cup	255	190	1	
Pineapple Crushed	1 cup	255	200	1	
Pineapple Juice Unsweetened	1 cup	250	140	1	
Raisins	1 cup	145	435	5	1
Raspberries Raw	1 cup	123	60	1	1
Strawberries Raw	1 cup	149	45	1	1
GRAIN					
Rice Brown Cooked	1 cup	195	230	5	1
Oatmeal Regular Quick	1 cup	234	145	6	2
SUGARS & SWEETS					
Honey	1 cup	339	1030	1	
Molasses Cane	2 tbsp	40	85		
Maple Syrup	2 tbsp	42	122		
VEGETABLES					
Beans Baby Limas	1 cup	180	190	12	1
Beets Cooked	1 cup	170	55	2	
Broccoli Raw	1 spear	151	40	4	1
Cabbage Raw	1 cup	70	15	1	
Cabbage Cooked	1 cup	150	30	1	
Corn Sweet Canned Kernels	1 cup	165	135	5	
Lettuce Chopped & Shredded Pieces	1 cup	56	10	1	
Onions Raw Chopped	1 cup	160	55	2	
Peas Cooked Drained	1 cup	160	65	2	
Potatoes	1/2 lb	202	220	5	
Sweet Potatoes Boiled w/ Skin	1/2 lb	151	160	2	
Tomato Juice Canned	1 cup	244	40	2	
Baked Beans	1 cup		392	14	
MEAT					
Chicken	3.5 oz.		200	8	
Turkey	3.5 oz.		160	8	
Lean Red Meat	3 oz.		155	25	

Calories for Adult Burn Victims

Body weight lbs.	Body weight kg. (÷ lbs. by 2.2)	10% burn 25-30 cal. per kg.	10%-24% burn 30-35 cal. per kg.	25% burn 40+ cal. per kg.
100	45.45	1136-1363	1363-1590	1818
125	56.82	1420-1704	1704-1988	2272
150	68.18	1704-2045	2045-2386	2727
175	79.55	1988-2386	2386-2784	3182
200	90.91	2227-2727	2727-3181	3636
225	102.27	2556-3068	3068-3579	4090
250	113.64	2841-3409	3409-3977	4545

For child burn victims, see protein chart below. Multiply grams of protein by 25 to get calories. This is not exact, but very close. It depends on the height and weight of the patient.

Grams of Protein for Child and Adult Burn Victims

	Small Burns	Large Burns
Child body weight in lbs.	2.5 grams per kg.	4 grams per kg.
30	34	55
40	45	73
50	57	91
60	68	109
70	80	127
80	91	145
90	102	164
100	114	182
Adult body weight in lbs.	1.5 grams per kg.	2 grams per kg.
125	85	114
150	102	136
175	119	159
200	136	182
225	153	205
250	170	227

WOUND HEALING

There are 3 requirements in order to build cellular tissue…if any of these ingredients are missing, it results in poor wound healing, slow wound healing, or no wound healing, and a lower resistance to infection.

Water: 6-8 (8oz) glasses of fluid daily
Any liquids such as soup, juice, milk, water or anything that is liquid at room temperature such as Jell-O and ice cream. Beverages that contain caffeine do not count.

Protein: 4-6 (6oz) servings daily

Meat/Fish/Poultry; 1 ounce is equivalent to 1 serving

Dairy Products; 1 serving is equivalent to 1 oz cheddar-type cheese, ¼ cup cottage cheese, 1 egg. One cup milk equals 1 ½ oz cheddar-type cheese, 2 cups cottage cheese, 1 ¾ cup ice cream, 1 cup pudding made with milk, 2 cups soups made with milk (1/3 cup instant nonfat dry milk may be substituted). Use whole milk with powdered milk as a beverage, in cooking, and on foods such as cereal (1/3 cup powdered to 1 cup whole milk). Chop hard-boiled eggs and add to casseroles, meatloaf, and sandwich spreads. Cream-style cottage cheese can be added to gelatin and then allowed to set.

Beans and Nuts; a handful is a serving size (1/2 cup). Chopped nuts can be added to salad, cereal, or fruit cups. 2 Tbsp peanut butter equals 1 serving and can be spread on bread, crackers, or used in a milkshake.

Multivitamin: 1 vitamin daily if not contraindicated. Any vitamin that contains 100% of vitamin A,B,C,D,E, Magnesium and Zinc. Centrum Silver is a good choice with MD approval.

Did you know…
Egg whites are pure protein and contain no fat.

Yogurt supplies as much protein as an egg as well as calcium.

Hi Protein powders and drinks may also be used to increase protein intake. Most patients agree that freezing a supplemental drink product makes the drink more palatable.

Powdered instant breakfast products can be mixed with whole or fortified milk for a beverage. Add ice cream to make a milkshake.

Sharon McKnight RN,BSN

Cooling The Burns
Advantage of Cooling and Disadvantage of Over Cooling

A. Cool burn immediately with cool water. (NOT ICE WATER)
   1. Seconds count, burns will keep penetrating if not cooled.
   2. Do not remove shoes or clothing right away.
   3. First immerse burn under or flood with water, then remove clothing or shoes.
   4. CALL FOR HELP! Notice the order.

B. Cool the burn again for up to 30 minutes or longer. Even up to 4 to 6 hours, until the pain has been relieved.
   1. This simple procedure interrupts the continuing effect of the heat and results in reduction of pain.

C. Recommended water temperature.
   1. 59 to 68 degrees, in most cases, just regular tap water.
   2. DO NOT USE ICE WATER!!
   3. Over cooling with cold water will cause swelling.
   4. Swelling will reduce circulation.
   5. Reduced circulation will retard healing.

D. When cooling is omitted.
   1. Burns will in seconds go from first degree to second degree, from second degree to third degree if not cooled.
   2. Resulting in nerve and blood vessel damage.
   3. Loss of skin and muscle tissue.

E. Cooling can be done by placing water soaked soft towels or 10 thickness water soaked paper towels.
   1. Once placed on the burn, toweling is not removed until cooling is completed.
   2. Paper toweling works best on face as will conform better.
   3. A cup of water is poured on the toweling every 3-5 minutes, or whenever pain returns until patient is comfortable.

F. Cool the burn, NOT the body.
   1. Monitor body temperature, preferably with an ear probe.
   2. Keep the body warm with blankets, warm drinks, hot water bottle etc.
   3. Ear probes are more accurate quicker.
   4. Under tongue temperature readings are better than rectal, which may vary.

G. Conclusion for cooling a burn.
   1. Immediate cooling has proven to be effective.
   2. Continue body temperature readings.
   3. At first sign of drop in body temperature, STOP the cooling.
   4. After body temperature is stabilized, you may continue cooling if needed.

H. Summary of cooling outlined.
   1. After putting out the fire, it is important to cool right away.
   2. But take these precautions.
   3. Make sure the water is not too cold.
   4. From 59 to 68 degrees seems a reasonable temperature, in most cases regular tap water.
   5. The best treatment for a burn would be prevention, but we know accidents happen.

Hydrotherapy (Hot & Cold)

1. Use 2 10-12 qt mixing bowls, or buckets. 1 for hot and 1 for cold water.
2. 1 white bath towel for the hot water, (we want no dye on the wound) and another for the cold water and a thermometer to measure the temperature of the hot water. (We do not want to cause a burn with this treatment.)
3. Dissolve a bit of epsom salt into the water.
4. Start with 115 to 120 degree water (or whatever is comfortable to the patient) and cold water with just a few ice cubes in the water to indicate that the water is cold. Sometimes this also needs to be modified for children or older folks.
5. This therapy should not cause extreme discomfort for the patient, especially for children. *We should never cause pain.* Modify the temperatures if it does. But keep it as warm and as cold as you can for the desired effect. Which is to increase the blood flow to the effected area. Blood flow is an absolute must for proper healing. Be aware that this therapy sometimes causes a tingling, stinging feeling where it is renewing blood channels
6. **Have the person lay down.** Twist excess water out of warm towel and lay or wrap on effected area. Yes, right on burn or wound if this is possible! Do not put something else like plastic or such like over wound first. I think from experience, we are drawing out waste material with the warm water. We do not want to push it back in with the cold water. It is very effective in turning wounds to a nice pink color most times. *Leave the towel on for three minutes.* Remove and drop back into the warm water. The temperature will drop so you will need a source of hot water to bring the temperature up to what is desired again.
7. Apply the cold towel as quickly as possible. *Leave on for two minutes.*
8. Repeat this sequence for thirty minutes. Do this at least twice a day whenever you remove the dressing. Some have found it greatly beneficial to do this three times a day, especially on leg ulcers.
9. Sometimes, when we start this therapy soon after the accident, we will draw blood before the thirty minutes are up. As soon as we see the towels becoming tinged with blood, we stop for this time. This is a good sign that the therapy is doing what it is supposed to do, bring blood to the surface, but we do it without any harm being done to the wound. No scraping etc. As time goes on, usually in a few day, we will no longer see blood on the towels. Then we can go the full thirty minutes.
10. I always start with warm and stop with warm.
11. If the warm water brings blood to the surface and this is what we want, why not just do the warm? I do not know, but seems to me like if we can flush the wound, bring blood in and then push it out, we can see the results of the hot and cold therapy, and it is good!
12. **It is so very important that you follow these directions exactly! Do not stick your foot/leg in a bucket of water. Warm will bring the blood in; Cold will push it back out. When you hang the leg down you will have a hard time getting that to happen without gravity help. So get the leg up.**

A warning; Do not lay a very heavy person who may be retaining fluids around the heart down flat when you do the hydrotherapy. Just get the leg up like on a recliner or so. You may cause trouble around the heart.

How to Make Normal Saline

This recipe for normal saline will save you money and allow you to fix the amount you need. Other names for this solution are boiled salt water, sodium chloride 0.9% solution, or isotonic sodium chloride. Normal saline is used for cleaning wounds, suctioning, tracheostomy care and other treatments.

Supplies:

- Table salt (plain, not iodized)
- Sterile jar with lid
- Measuring cup
- Measuring teaspoon
- Pan with lid
- Timer or clock

Steps to follow:

- Wash your hands well with warm water and soap. Rinse with warm water and dry.
- Get your supplies together.
- Wash the pan and lid with mild soap and water. Rinse well with water. Use Stainless Steel pot
- To make one (1) quart (32 ounces or 1000 ml), measure 4 cups of tap water and pour it into the pan.
- Add 2 level teaspoons of table salt to the water.
- Cover the pan. Bring the water to a boil and boil for 15 minutes. Be sure to keep the lid on the pan.
- Remove the pan from the heat. Keep the lid on the pan while the normal saline cools to room temperature.
- Pour the normal saline into a sterile jar. Close the jar tightly with a sterile lid.
- Label the jar with the date and time the normal saline was made. Also mark the date and time you should throw away or discard any that is left in the jar. This would be 48 hours after you open the jar. Here is an example of a label:

Date and time made _____
Date and time to discard _____

- Throw away unopened jars of normal saline one month after you prepared them.

If you would like more written information, please call the Library for Health Information at (614)293-3707. You can also make the request by e-mail: health-info@osu.edu.

Release, Waiver of Liability and Hold Harmless

This Release, Waiver of Liability and Hold Harmless agreement is being entered into on _____ By _____ (the 'Injured Person') and _____ (the 'Caregiver'). The Injured Person is requesting the assistance from the Caregiver with his/her physical injury as follows:

I, _____ hereby request the assistance of _____ as Caregiver with my physical injury. I acknowledge and realize that the above named Caregiver is providing this assistance to me as a Good Samaritan solely at my request and is not a trained person to provide medical treatment or advice. In order to receive the assistance of Caregiver, I agree to release, waive, discharge, and covenant not to sue, and agree to defend, indemnify and hold Caregiver harmless from and against any and all liabilities, demands, claims, or injuries including death, that may result from the assistance and service provided by Caregiver. I agree to assume any risk related to assistance rendered by Caregiver.

I, the Injured Person, agree that my health and well being are my own responsibility and have and will seek whatever trained medical care and treatment that I deem appropriate. I have not, will not and do not rely upon nor request the advice of Caregiver regarding the necessity of my medical treatment. I agree to discontinue and seek assistance if I do not believe I can safely continue, to limit my participation to reflect my personal fitness level, and to refrain from any and all actions that would pose a hazard to myself or to others.

I, the Injured Person, have read, understand and make this statement on my own volition. I understand and acknowledge that this Release discharges Caregiver from any liability or claim that I may have against Caregiver with respect to bodily injury, personal injury, illness, death or property damage that may result from the assistance that I receive from Caregiver.

By signing below, I express my understanding and intent to enter into this Release, Waiver of Liability and Hold Harmless willingly and voluntarily.

_____ _____
Signed: Injured Person Date

_____ _____ _____
Printed: Injured Person Address Phone Number

_____ _____
Signed: Witness Date

_____ _____
Signed: Caregiver Date

Release, Waiver of Liability and Hold Harmless

This Release, Waiver of Liability and Hold Harmless agreement is being entered into on _____

By _____ as Parent for minor _____ ("Child"; with 'Parent' and 'Child' together, the 'Injured Person') and _____ (the 'Caregiver'). The Injured Person is requesting the assistance from the Caregiver with his/her physical injury as follows:

I, _____, Parent, hereby request for my Child _____ the assistance of _____ as Caregiver with physical injury. I acknowledge and realize that the above named Caregiver is providing this assistance to my Child as a Good Samaritan solely at my request and is not a trained person to provide medical treatment or advice. In order to receive the assistance of Caregiver, I, and on behalf of my Child, heirs, assigns and next of kin agree to release, waive, discharge, and covenant not to sue, and agree to defend, indemnify and hold Caregiver harmless from and against any and all liabilities, demands, claims, or injuries including death, that may result from the assistance and service provided by Caregiver. I agree to assume any risk related to assistance rendered by Caregiver. (5)

I agree that my Child's health and well being are my own responsibility and have and will seek whatever trained medical care and treatment that I deem appropriate. I have not, will not and do not rely upon nor request the advice of Caregiver regarding the necessity of my Child's medical treatment. I agree to discontinue and seek assistance if I do not believe my Child can safely continue, to limit my Child's participation to reflect his/her personal fitness level, and to refrain from any and all actions that would pose a hazard to my Child or to others.

I have read, understand and make this statement on my own volition. I understand and acknowledge that this Release discharges Caregiver from any liability or claim that I, my Child, my heirs, assigns and next of kin may have against Caregiver with respect to bodily injury, personal injury, illness, death or property damage that may result from the assistance that my Child may receive from Caregiver.

By signing below, I express my understanding and intent to enter into this Release, Waiver of Liability and Hold Harmless willingly and voluntarily on behalf of myself as Parent, my Child, my heirs, assigns and next of kin.

_____ _____
Signed: Injured Person Parent or Guardian Date

_____ _____
Signed: Injured Person Parent or Guardian Date

_____ _____ _____
Printed: Injured Person Parent(s) Address Phone Number

_____ _____
Signed: Witness Date

_____ _____
Signed: Caregiver Date