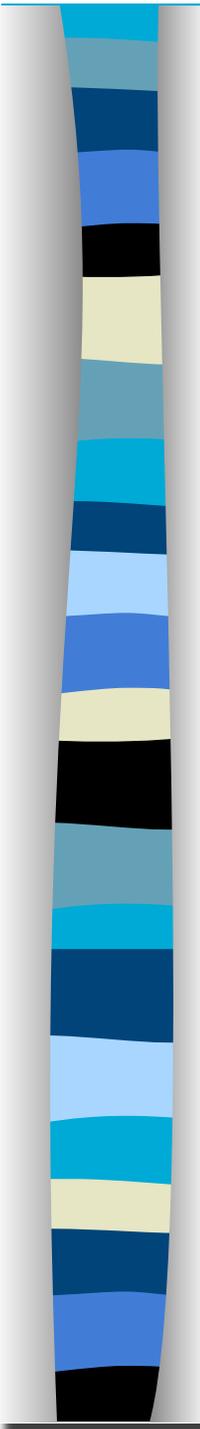


24b Hydrotherapy: Theory and Technique Demo

24b Hydrotherapy: Theory and Technique Demo Class Outline



5 minutes

Attendance, Breath of Arrival, and Reminders

10 minutes

Lecture:

25 minutes

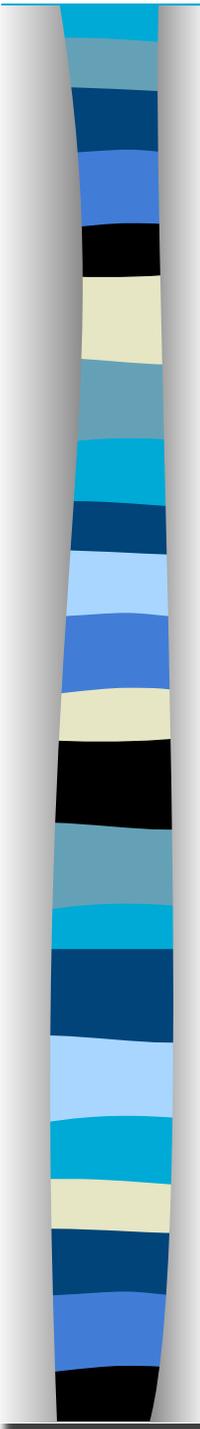
Lecture:

15 minutes

Active study skills:

60 minutes

Total



24b Hydrotherapy: Theory and Technique Demo Class Reminders

Quizzes:

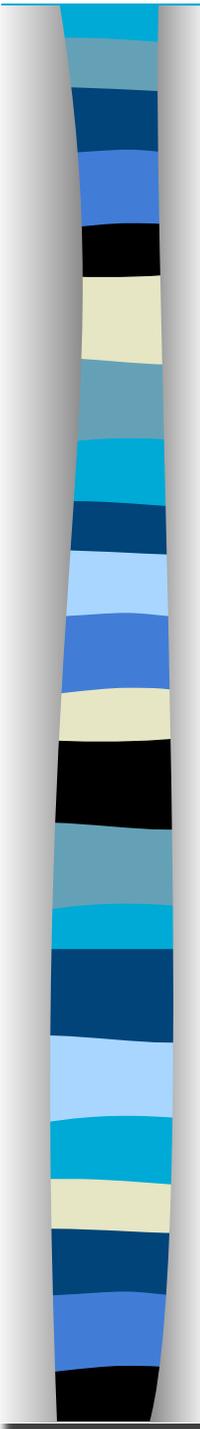
- 29b Kinesiology Quiz
 - Supraspinatus, infraspinatus, teres minor, subscapularis, pec minor, & serratus anterior
- 31a Written Exam Prep Quiz (20a, 20b, 21b, 22a, 23a, 24b, 29b, and 30a)
- 32a Written Exam Prep Quiz (24a, 25a, 26a, 27a, 28a, 29a, 30b, and 31b)

Assignments:

- 30a Review Questions
 - Packet A: 141-158

Preparation for upcoming classes:

- 25a A&P: Muscular System: Mechanism of Contraction
 - Trail Guide: subscapularis
 - Packet E: 41-44
 - RQ Packet A-148
- 25b Hydrotherapy: Dry Brushing, Cold Water Wash, and Foot Treatment
 - Packet G: 15-19



Classroom Rules

Punctuality - everybody's time is precious

- Be ready to learn at the start of class; we'll have you out of here on time
- Tardiness: arriving late, returning late after breaks, leaving during class, leaving early

The following are not allowed:

- Bare feet
- Side talking
- Lying down
- Inappropriate clothing
- Food or drink except water
- Phones that are visible in the classroom, bathrooms, or internship

You will receive one verbal warning, then you'll have to leave the room.

24b Hydrotherapy: Theory and Technique Demo

Liquid



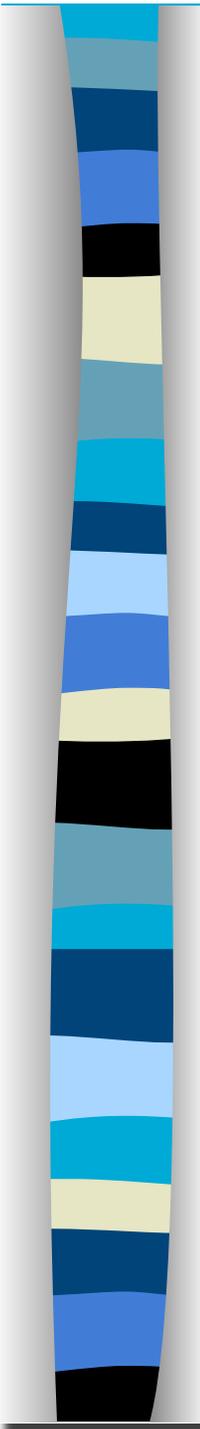
Ice



Steam



Please turn to page G-1 . . .



Hydrotherapy

Hydrotherapy Internal and external therapeutic use of water and complementary agents.

Complementary agents Soaps, essences, aromatics, minerals, seaweed, salt, carbon dioxide, and oxygen.

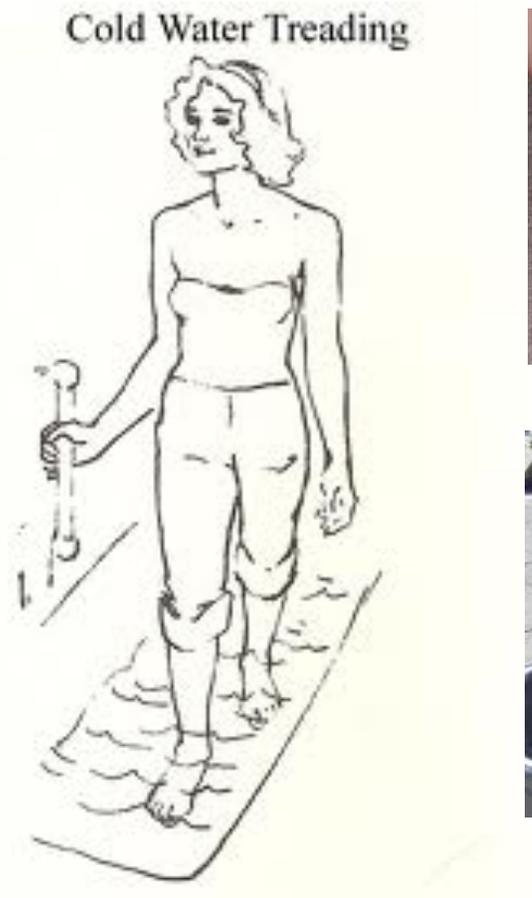
Thermotherapy

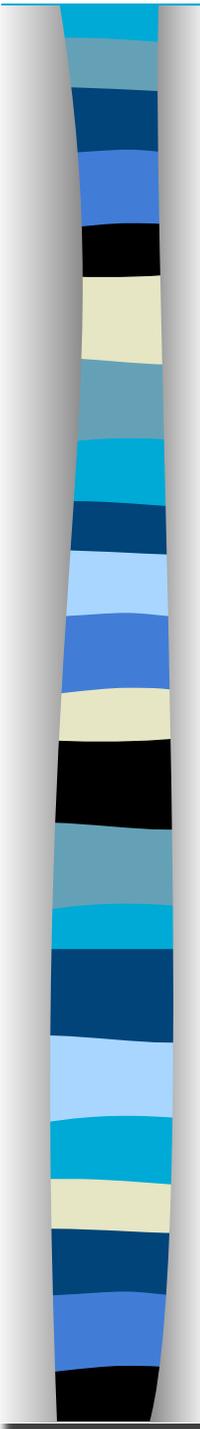
(hot compress, hot pack, hot tub, herbal wrap)



Cryotherapy

(cold pack, cold water treading, plantar fasciitis treatment, ice massage, ice bath)

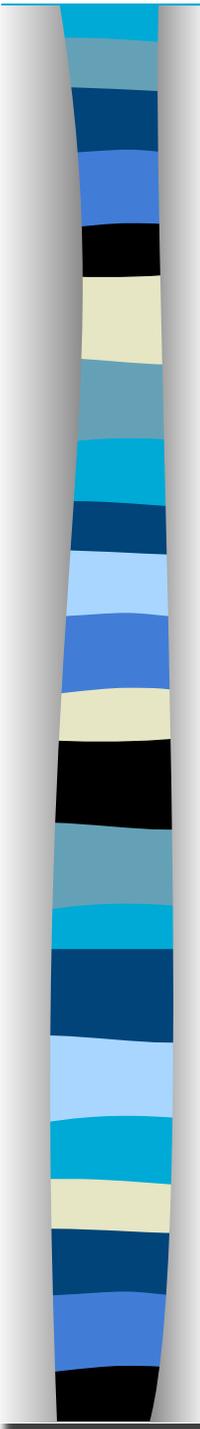




Hydrotherapy Effects

Intrinsic Direct result of the temperature on the tissue it is applied to.

Reactive Result of the body's protective (homeostatic) reaction to the temperature.

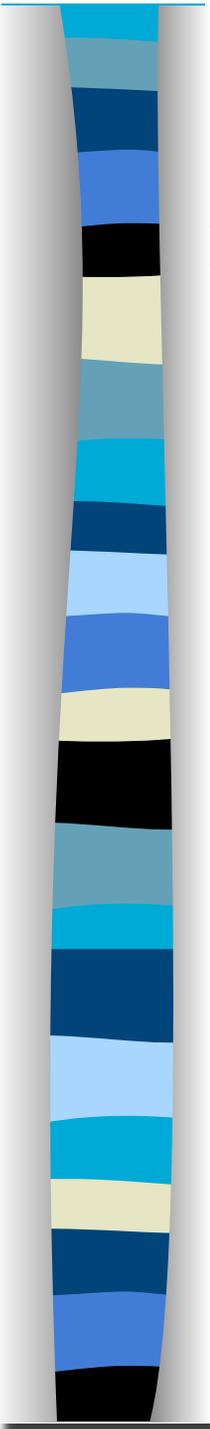


Homeostatic Reactions

Vasodilation Enlargement of the vascular lumen's diameter.

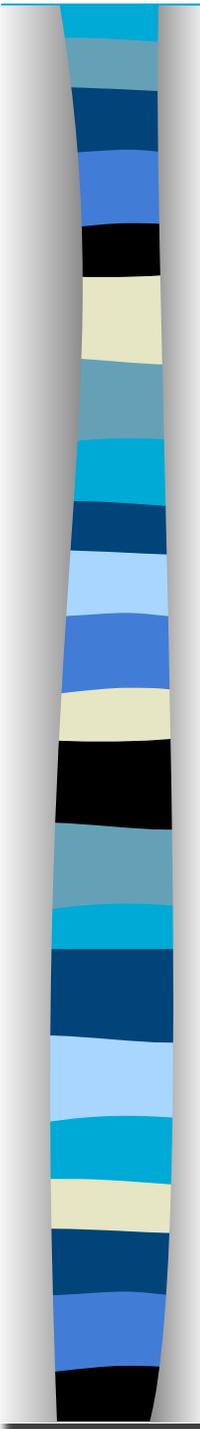
Vasoconstriction Narrowing of the vascular lumen's diameter.

Vasostasis Laxity in tone of circulatory vessel wall; retards venous return causing blood to pool at the site.



Factors that contribute to the effects of water on the body

- Chemical
- Physical
- Thermal
- Moisture



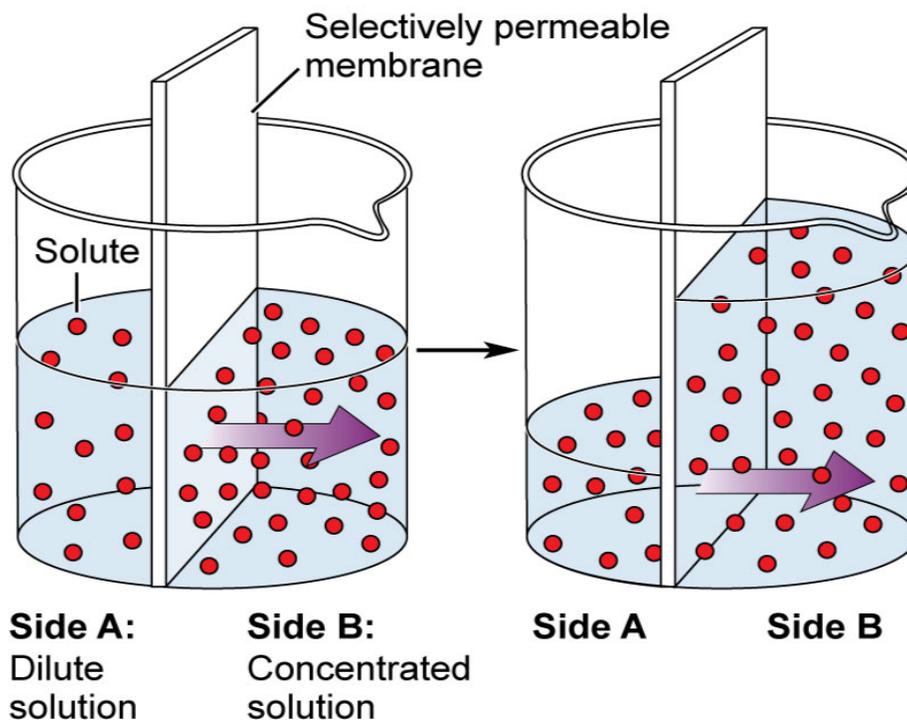
Factors that contribute to the effects of water on the body

Chemical factors (AKA: mineral content) Minerals dissolve very easily in water to form a therapeutic solution that can be applied externally or taken internally. pH or other chemical properties are altered by the addition of minerals to water.

Chemical (mineral content)



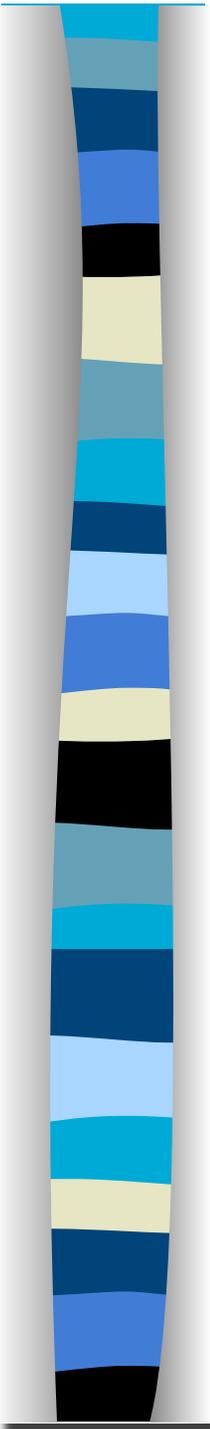
Osmosis



From Herlithy B: *The human body in health and illness*, ed 4, St. Louis, 2011, Mosby.

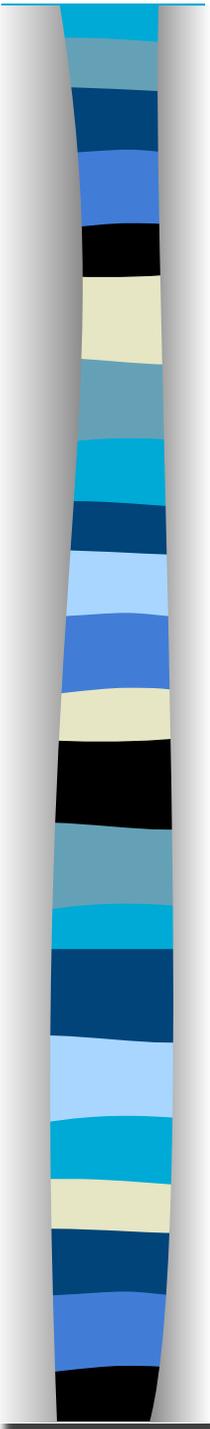
Fig. 18-5. Osmosis.





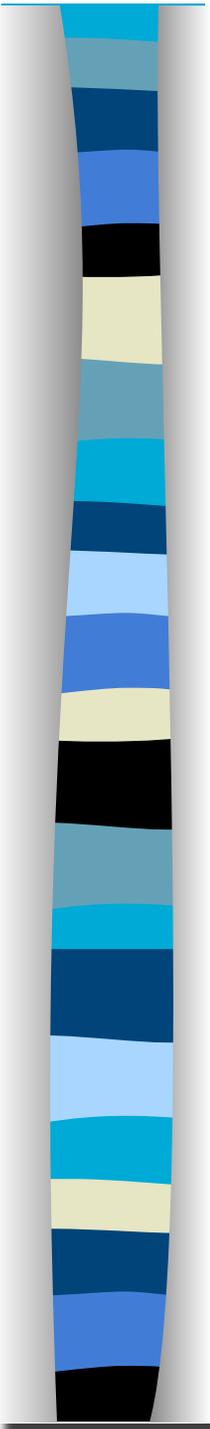
Factors that contribute to the effects of water on the body

Physical factors (AKA: mechanical effect) Water weighs 8.33 lbs./gallon.



Factors that contribute to the effects of water on the body

- **Hydrostatic pressure (AKA: Law of Pascal)** When the body is immersed in water, the sideways pressure exerted against the body is uniform. This pressure increases with depth and fluid density. This pressure reduces edema (swelling) and generally facilitates blood and lymph flow. 1 hour immersed in water increases urination by 50%.



Factors that contribute to the effects of water on the body

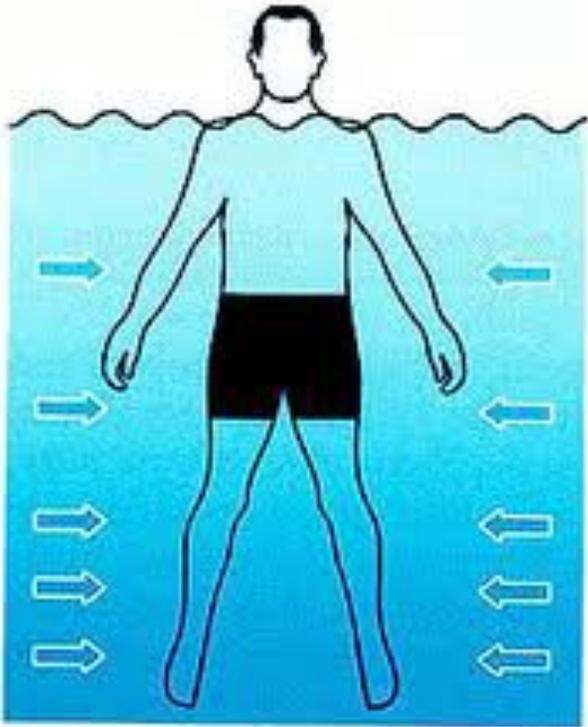
- **Principle of relative density** Buoyancy “unloads” the body of much of its weight allowing range of motion with reduced stress.

Density of water = 1.0

Density of water with minerals added is greater than 1.0

Density of adult human = 0.97

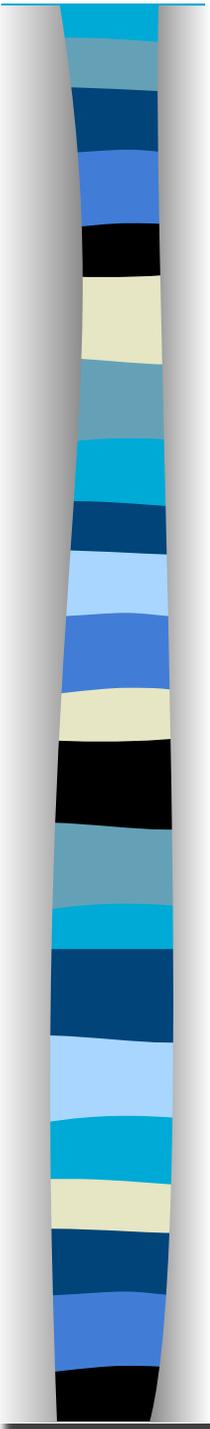
Hydrostatic Pressure and Relative Density



Factors that contribute to the effects of water on the body

- **Thermal factors (AKA: temperature effect)** The greater the difference between the body temperature and water temperature, the greater the effect will be.

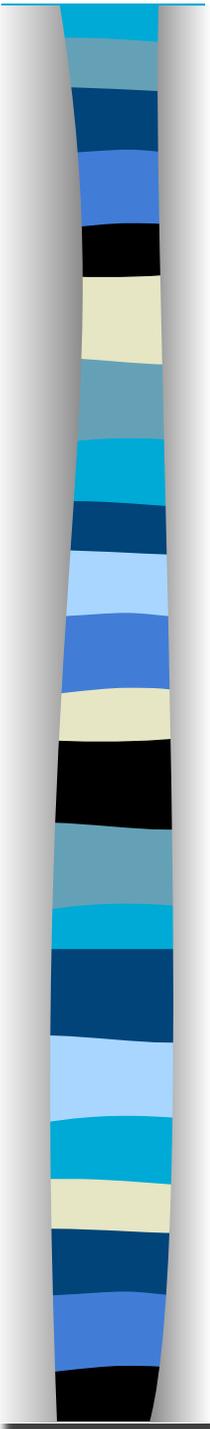




Factors that contribute to the effects of water on the body

Thermal Factors

- **Vasoconstriction** Narrowing of the vascular lumen's diameter.
- **Vasodilation** Enlargement of the vascular lumen's diameter.
- **Vasostasis** Laxity in tone of circulatory vessel wall. Retards venous return causing blood to pool at the site.

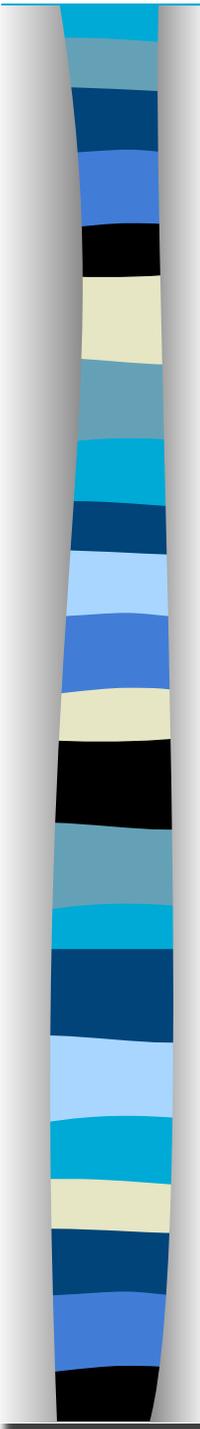


Factors that contribute to the effects of water on the body

- **Moisture factors (AKA: wetness)** Percentage of moisture contributes pros and cons to hydrotherapy treatments.

Steam bath Moisture content: 100%. Moistens nasal passages and throat. Keeps skin supple. Breathing difficulties due to heaviness of the air.

- **Sauna** Moisture content: 10 - 20%. Easier to breath. Drying and irritating to skin and mucous membranes.



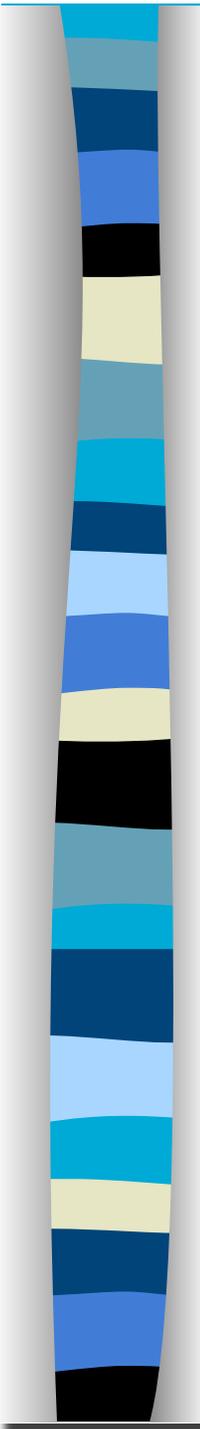
Hydrotherapy (to promote wellness or address pathology)

Relax, pamper, cleanse, beautify:

Dry brush, facial, foot treatment, and herbal wrap.

Clinical therapy for pathology:

Cold wash, cold water treading, hot treatment, cold treatment, contrast bath.



Useful Properties of Water

- Availability
- Safety
- High-conductivity
- Fluidity
- High specific heat
- Latent heats

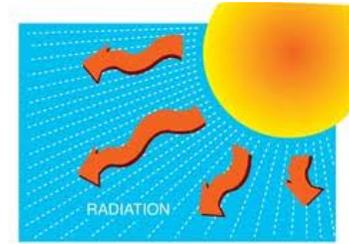
Useful Properties of Water

Availability Water is cheap and found everywhere.

Safety Water is non-toxic, easy to clean up, and does not stain.



Useful Properties of Water



High-conductivity Water gives up its heat or cold readily to another object.

Fluidity Water conforms easily to the shape of the body, providing for even more effective conduction.

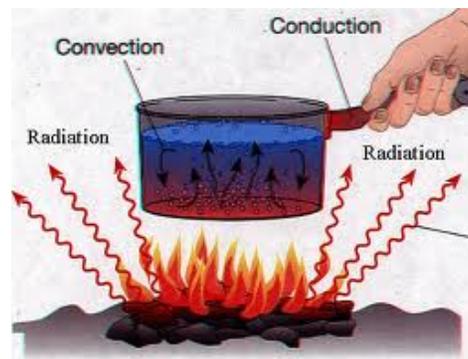


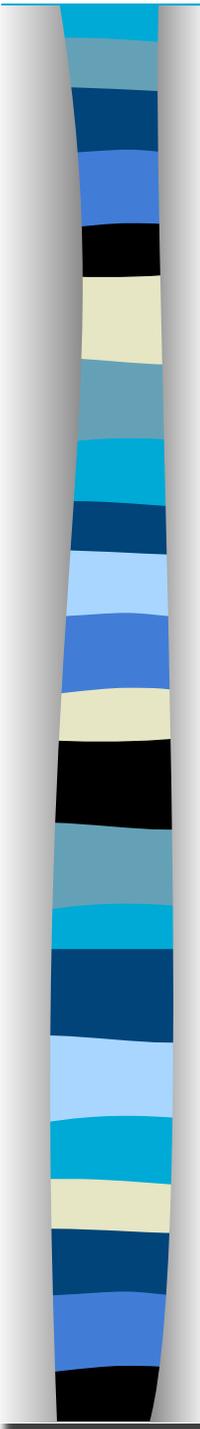
Useful Properties of Water

High specific heat Water can store a lot of heat or cold.



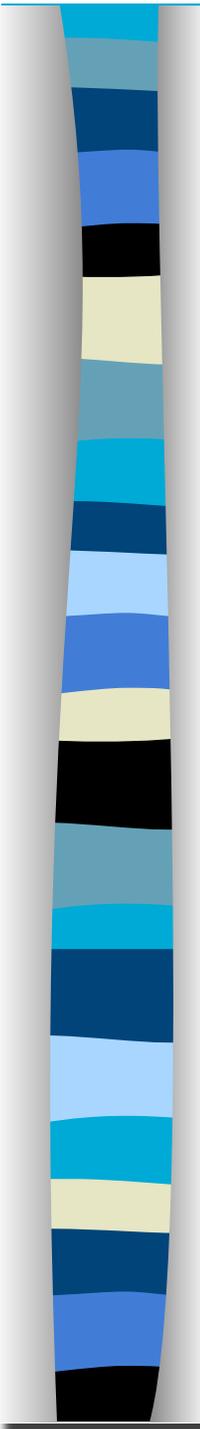
Latent heats Water allows a lot more transfer of heat and cold at temperatures we can readily access.





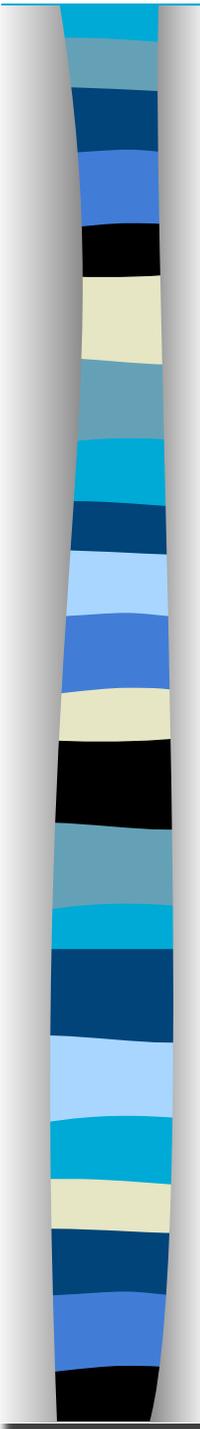
Contraindications for Thermotherapy

- Acute injury (abrupt onset, short duration)
- Autoimmune conditions (self-attacking)
- Fresh bruises (skin discoloration)
- Hemorrhaging (bleeding)
- Recent burns (including sunburns)
- Cardiac impairment (heart problems)
- Stroke survivors (lack of blood flow to brain)
- Edema (swelling)
- Fever (body temp above 98°-100° F)
- Hypertension (blood pressure above 140/90)
- Hypotension (blood pressure under 90/60)



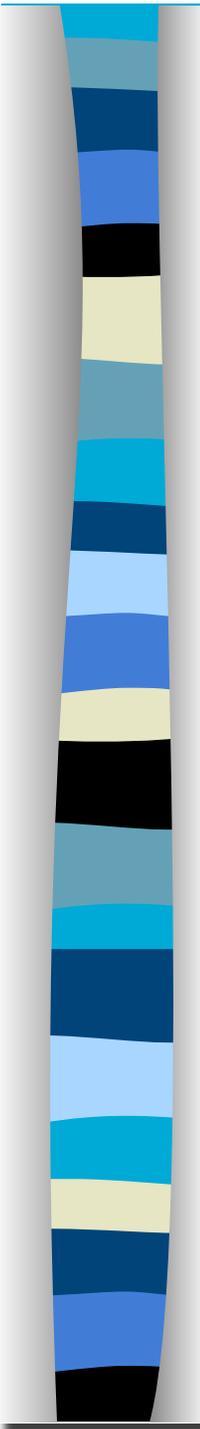
Contraindications for Thermotherapy, continued

- Inflammation (pain, heat, swelling, redness, loss of function)
- Chronic illness (persistent or long-lasting)
- Significant obesity (excess body fat)
- Open wounds (abrasions, blisters, cuts, etc)
- Phlebitis (inflammation of veins)
- Pregnancy (except for paraffin treatments)
- Rosacea (facial redness)
- Skin rash (abnormal color, texture, appearance)
- Sensory impairment (unable to properly sense pressure and pain)



Contraindications for Cryotherapy

- Arthritis (joint inflammation)
- Stroke survivors (lack of blood flow to brain)
- Open wounds (abrasions, blisters, and cuts)
- Hypertension (blood pressure above 140/90)
- Raynaud's Syndrome (sensitivity to cold)
- Fibromyalgia (tender points, fatigue, sleep, depressed mood, headaches, problems)
- Rheumatoid conditions (chronic systemic inflammation)
- Any sensory impairment (not able to detect unsafe temperature changes)
- Skin Infection (pathogenic invasion)
- Rashes (abnormal color, texture, appearance)
- Endometriosis (cells from the lining of the uterus appear and flourish outside the uterine cavity, most commonly on the ovaries)

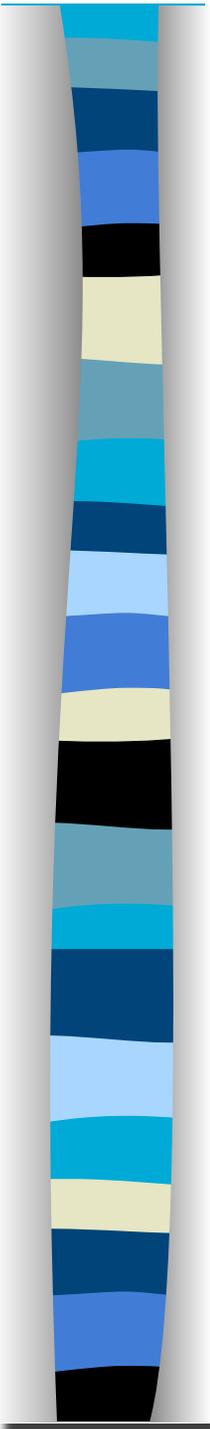


Variables of Hydrotherapy

Character of Effect: Intrinsic or extrinsic

Type of Effect on Metabolism and Circulation: Stimulative or Depressive

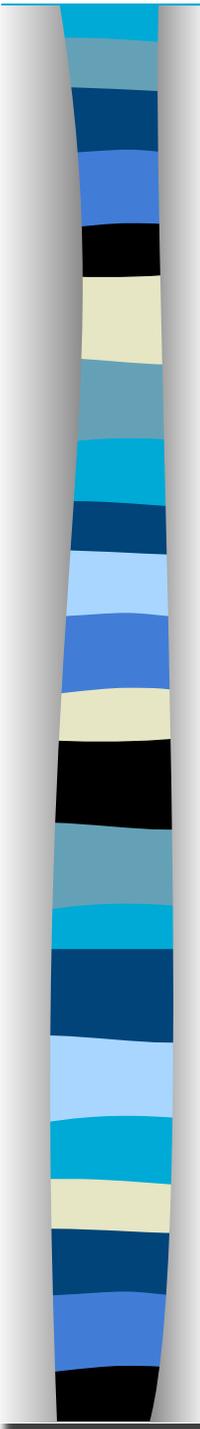
Temperature: Hot or Cold



Character of Effects

Intrinsic Direct result of the temperature on the tissue it is applied to.

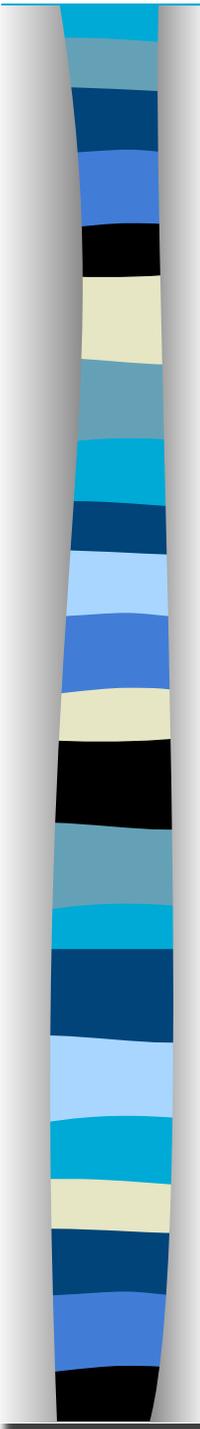
Reactive Result of the body's protective reaction to the temperature.



Type of Effect

Stimulative

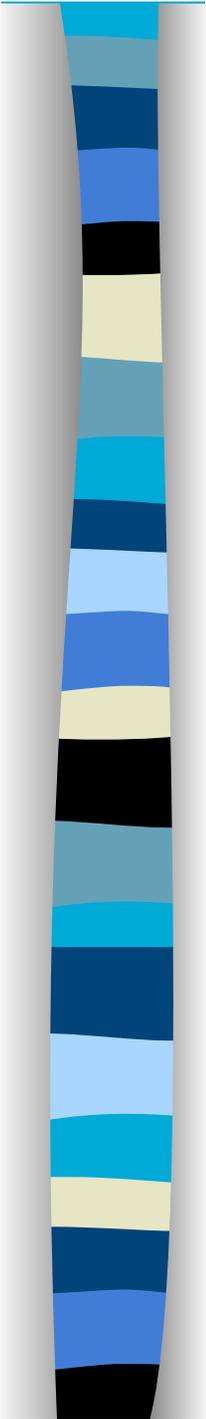
- Circulation: vasodilation
- Metabolism: increased oxygen absorption, carbon dioxide excretion, and increasing demand for fuel (energy sources)



Type of Effect

Depressive

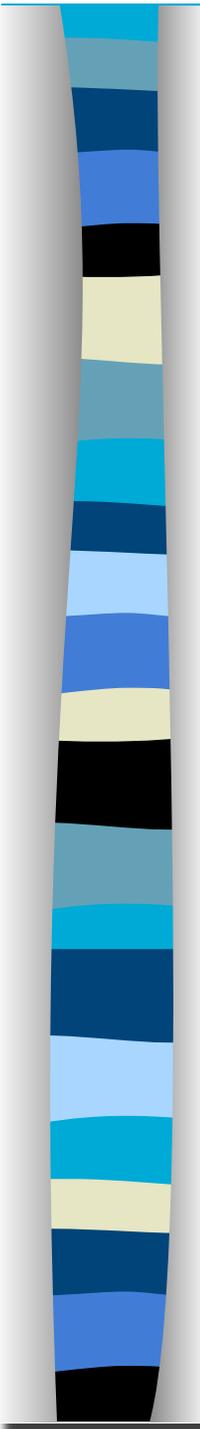
- Circulation: vasoconstriction or vasostasis.
- Metabolism: decreased oxygen absorption and carbon dioxide excretion.



Temperatures

For Hydrotherapy purposes:

- Hot: 105° F to 110° F
- Cold: 55° F to 65° F



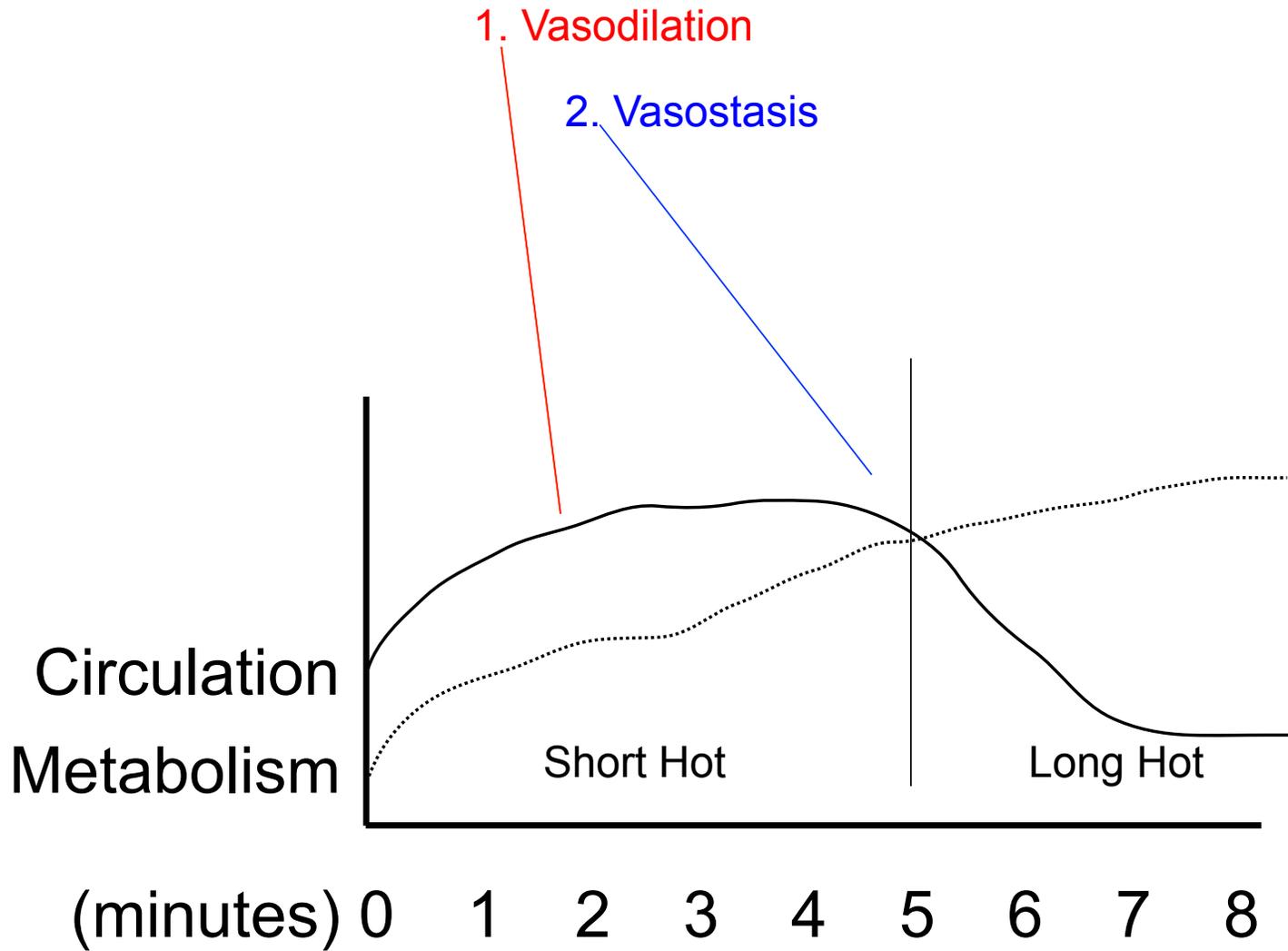
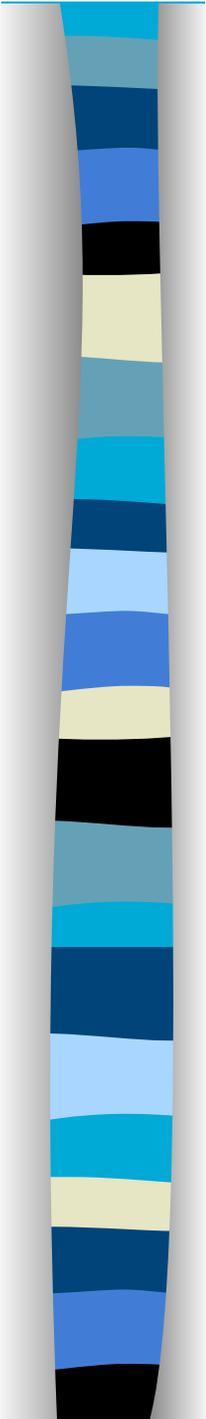
Thermotherapy Treatments

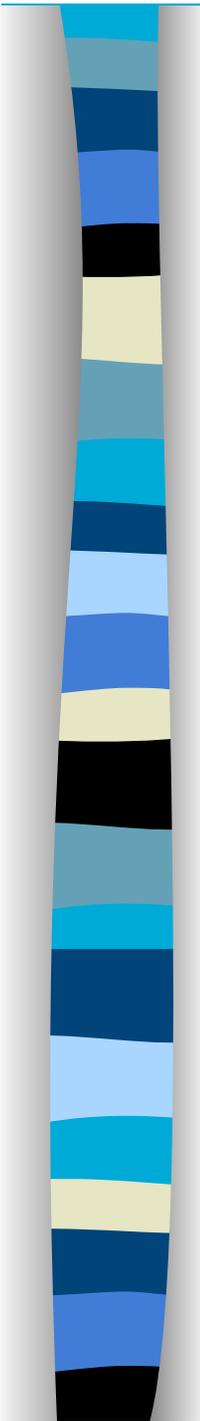
Short hot

- Temperature: 105-110° F
- Time: < 5 minutes
- Circulation: stimulated
(intrinsic vasodilation)
- Metabolism: stimulated
- Tissue tone: decreased
- Flexibility: increased

Long hot

- Temperature: 105-110° F
- Time: > 5 minutes
- Circulation: depressed
(reactive vasostasis)
- Metabolism: stimulated
- Tissue tone: decreased
- Flexibility: increased





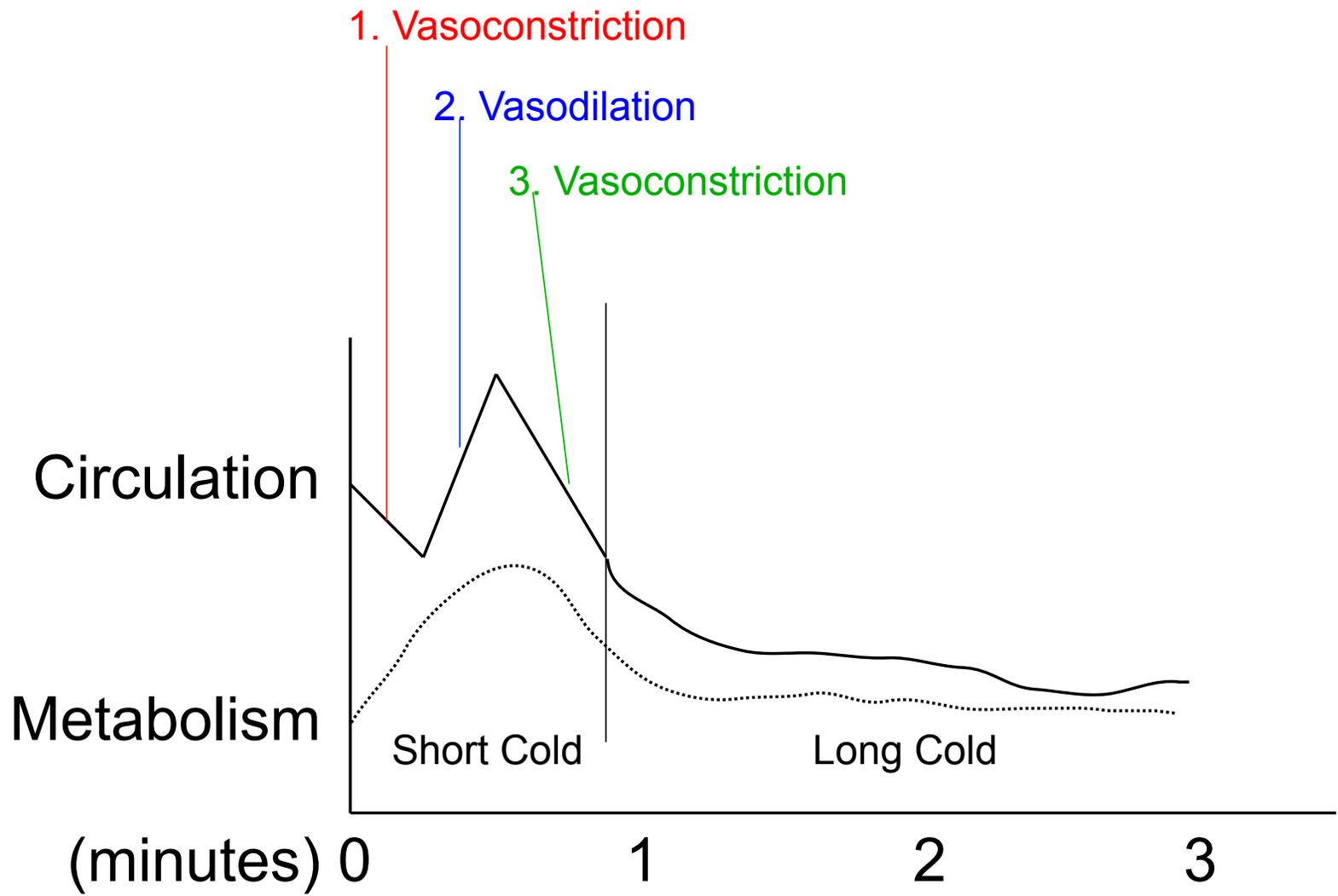
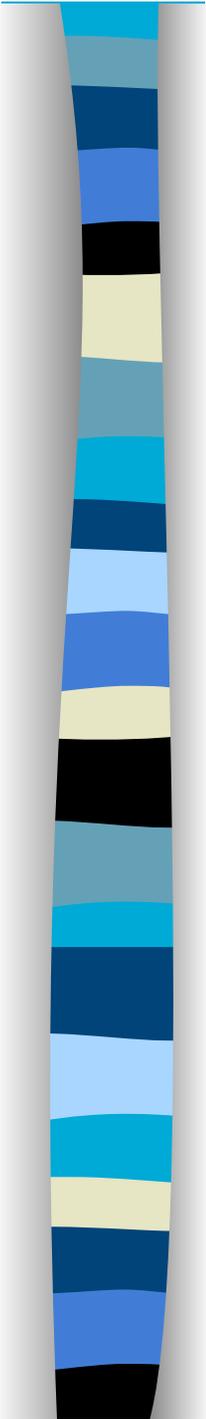
Cryotherapy Treatments

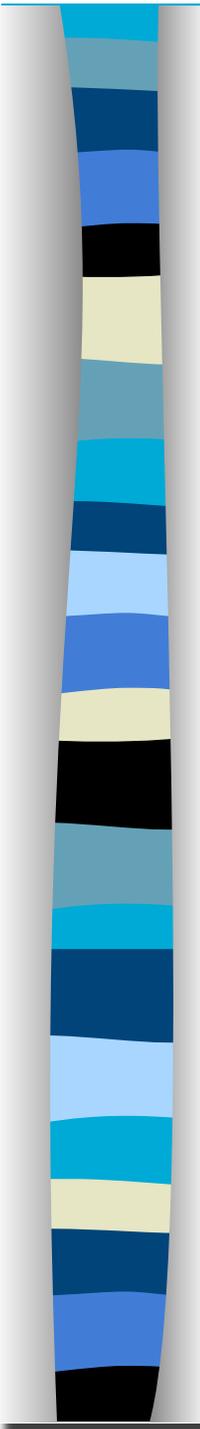
Short cold

- Temperature: 55-65° F
- Time: < 1 minute
- Circulation: stimulated
(reactive vasodilation)
- Metabolism: stimulated
- Tissue tone: increased
- Inflammation: decreased

Long cold

- Temperature: 55-65° F
- Time: > 1 minute
- Circulation: depressed
(intrinsic vasoconstriction)
- Metabolism: depressed
- Tissue tone: increased
- Inflammation: decreased





Contrast Bath (short hot, short cold, repeat up to 3 times)

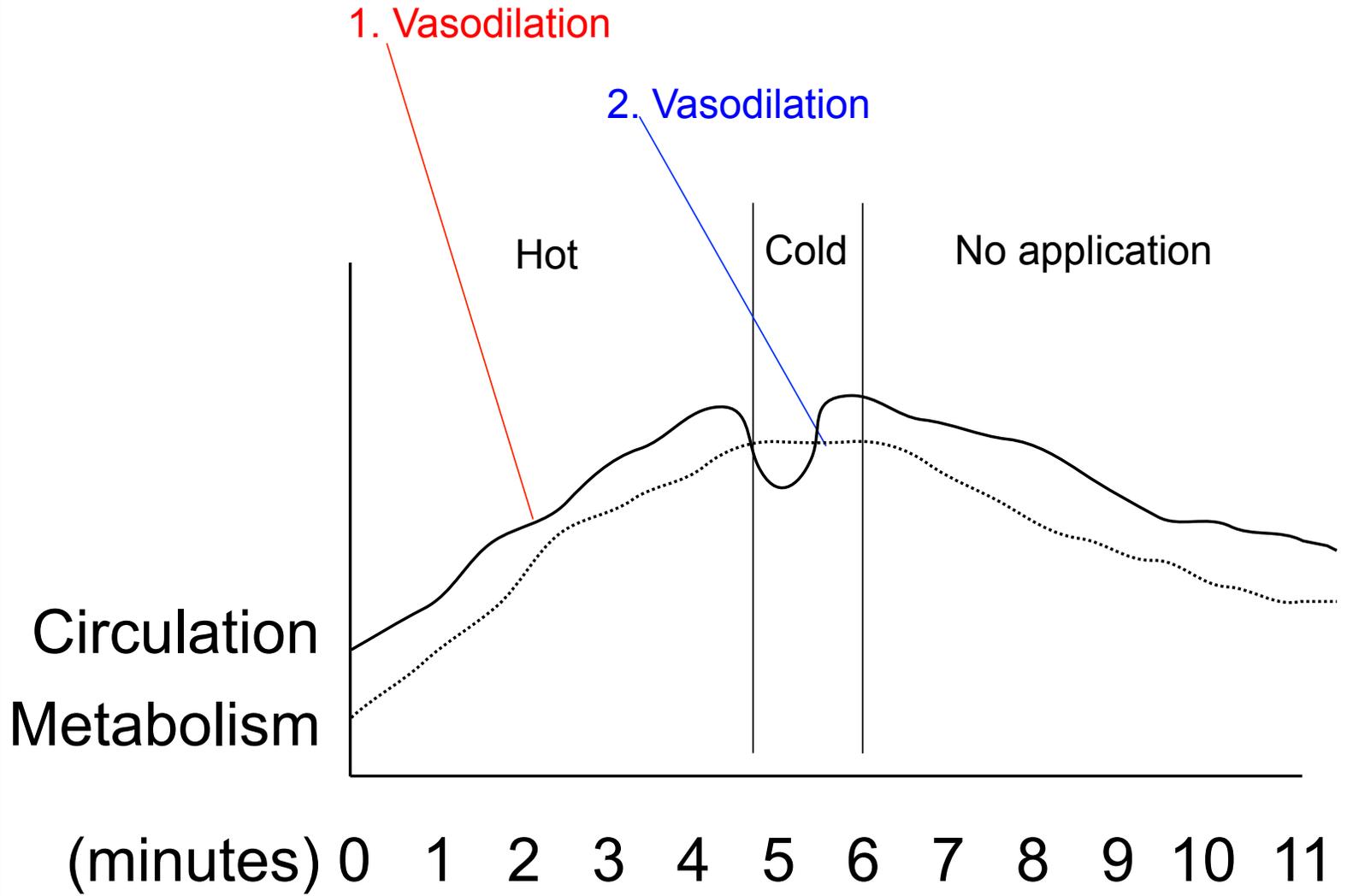
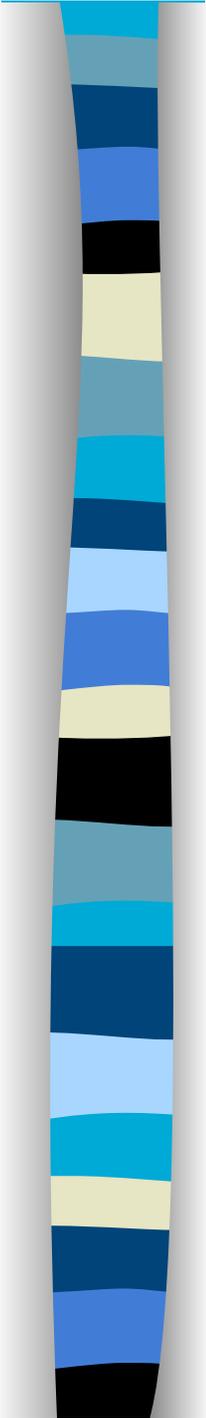
Short hot

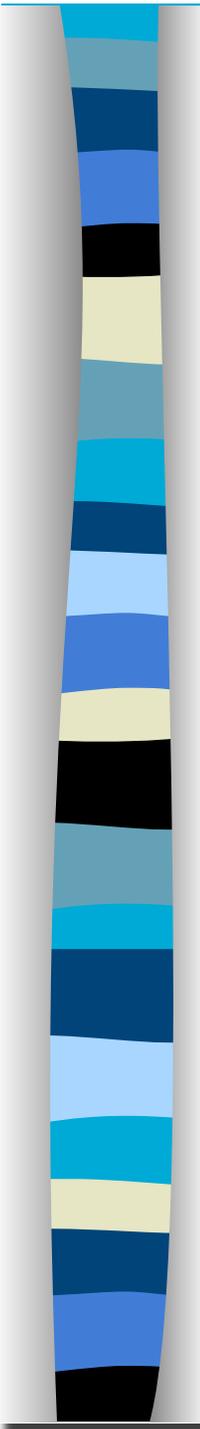
- Temperature: 105-110° F
- Time: 1 minute OR 3 minutes

Short cold

- Temperature: 55-65° F
- Time: 30 seconds OR 1 minute

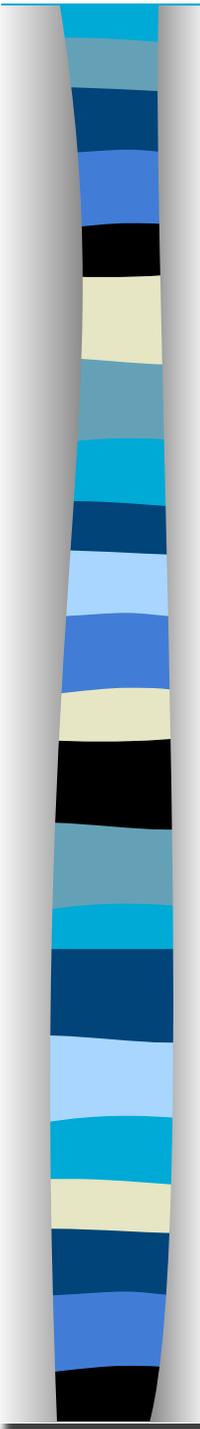
Note: This is the most effective means of flushing the area with fresh blood.





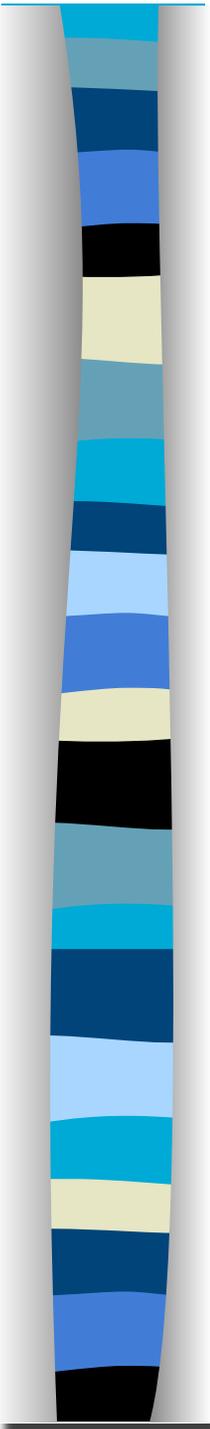
Dangers of long hot treatments

- Circulation depressed
- Metabolism increased
- Lack of nutrient delivery and waste removal at the same time as increased consumption of nutrients by cells can result in toxic tissues.



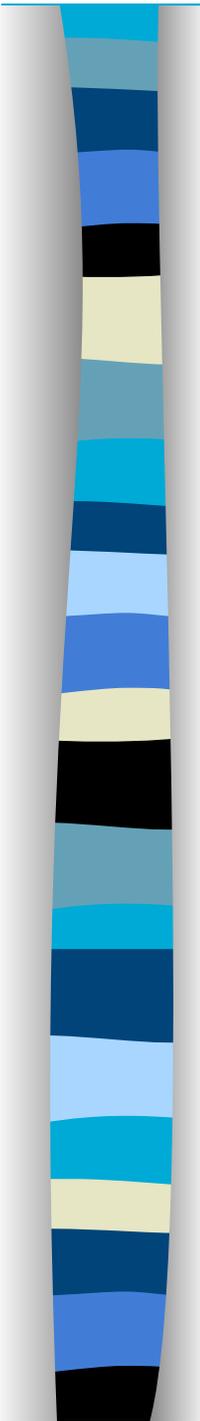
Avoiding the Dangers of Long Hot Treatments (by stimulating circulation)

- Exercise
- Massage
- Cold application



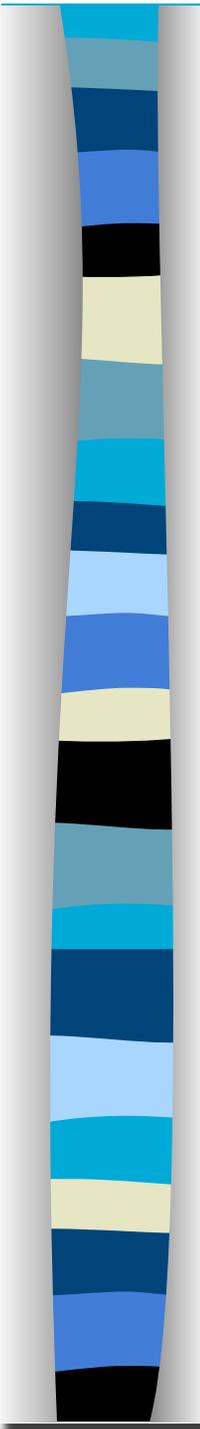
Acute Inflammation or Nerve Root Compression

- Local metabolism is slowed which kills pain by causing the neurons to fire more slowly.
- Reduces the likelihood of secondary cell death.
- Minimizes swelling.



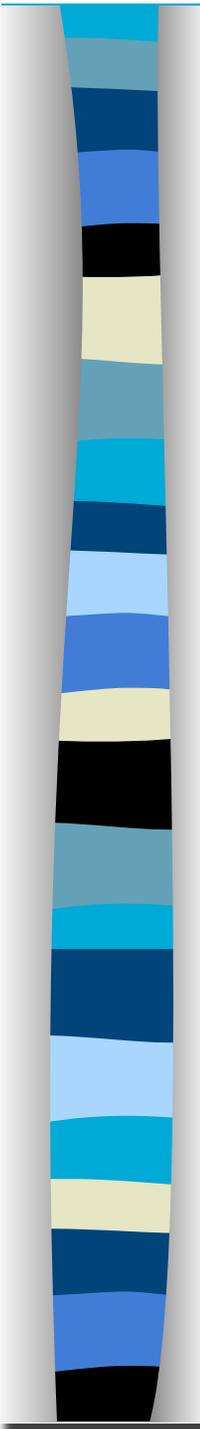
Survey of Hydrotherapy Modalities and Methods

- **Balneology / Balneotherapy** Therapeutic use of baths.
- **Crenology / Crenotherapy** Therapeutic use of mineral water.
- **Ablution** Applying water by hand using a towel (cold water wash)
- **Affusion** Pouring water in a stream onto the body (to lower body temperature during fever).
- **Poultice / Cataplastm** A soft, moist mass spread between the layers of cloth and applied hot to create moist, local heat or to counter irritation (mustard plaster).
- **Compress** A pad of moist, folded linen applied with pressure, sometimes it is medicated.
- **Heating compress** A mild application of moist heat for several hours by means of a cold compress applied to a part and covered with dry flannel which allows the compress to be warmed by the circulation it stimulates. THIS IS NOT A HOT COMPRESS!
- **Fomentation / Stupe** A very hot, moist application, usually made of wool and sometimes medicated.
- **Alternate** A series of alternating hot and cold applications to the same body area consisting of at least three applications of each, the duration of the cold being $\frac{1}{4}$ to $\frac{1}{2}$ as long as the hot. (contrast baths)



Hydrotherapy Precautions: Question and Answer

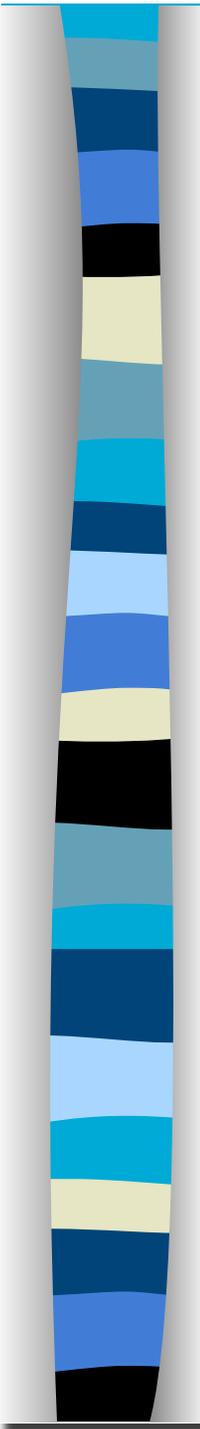
Q. Why should there always be time for the client to rest after a hydrotherapy treatment?



Hydrotherapy Precautions: Question and Answer

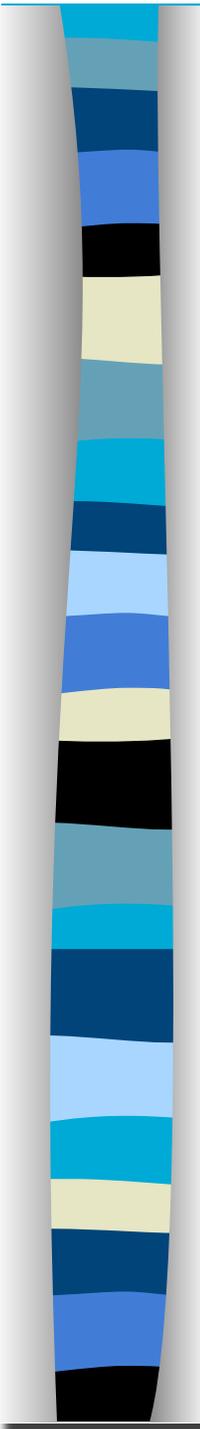
Q. Why should there always be time for the client to rest after a hydrotherapy treatment?

A. To allow the body time to recover from the reactive effects.



Hydrotherapy Precautions: Question and Answer

Q. Why should hot always be followed by cold in hydrotherapy?

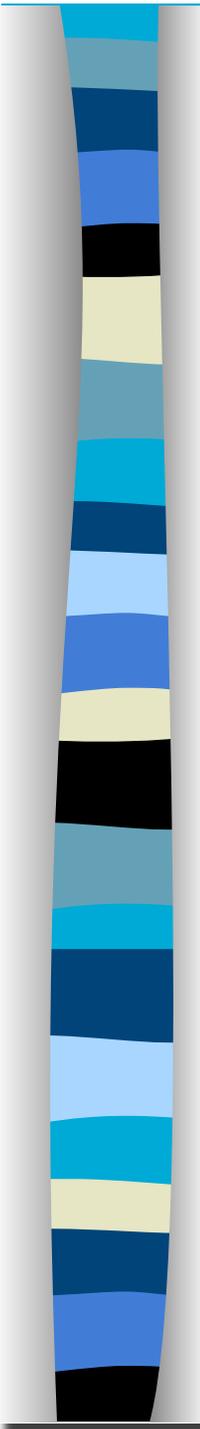


Hydrotherapy Precautions: Question and Answer

Q. Why should hot always be followed by cold in hydrotherapy?

A. To prevent vasostasis caused by hot treatment.

Always start with HOT, always end with COLD



Hydrotherapy Precautions: Question and Answer

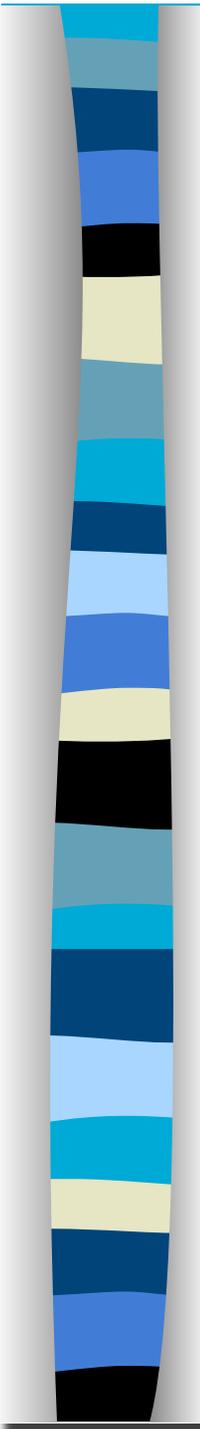
Q. Why treat the young, old, feeble, and obese with care especially while doing cold hydrotherapy applications?

Hydrotherapy Precautions: Question and Answer

Q. Why treat the young, old, feeble, and obese with care especially while doing cold hydrotherapy applications?

A. Poor capacity to respond to intense treatments.





Hydrotherapy Precautions: Question and Answer

Q. What should you do if your client is chilled by a hydrotherapy treatment?



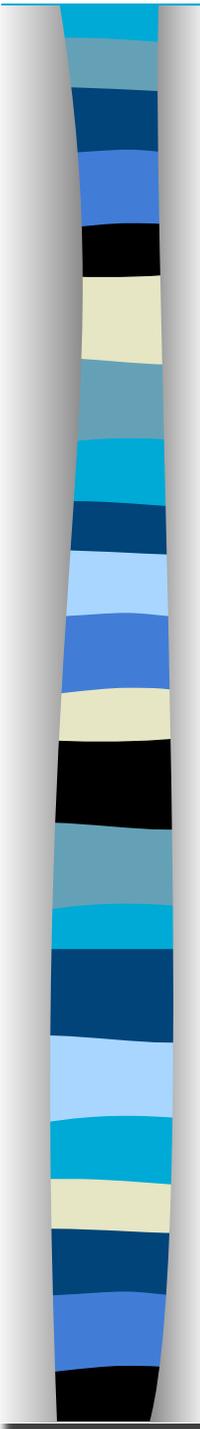
Hydrotherapy Precautions: Question and Answer

Q. What should you do if your client is chilled by a hydrotherapy treatment?



A. Stop the treatment and warm the client with heat, friction, blankets and warm drinks.





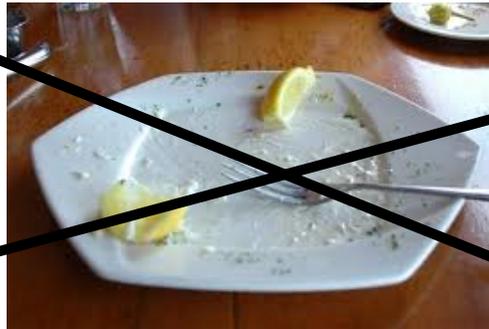
Hydrotherapy Precautions: Question and Answer

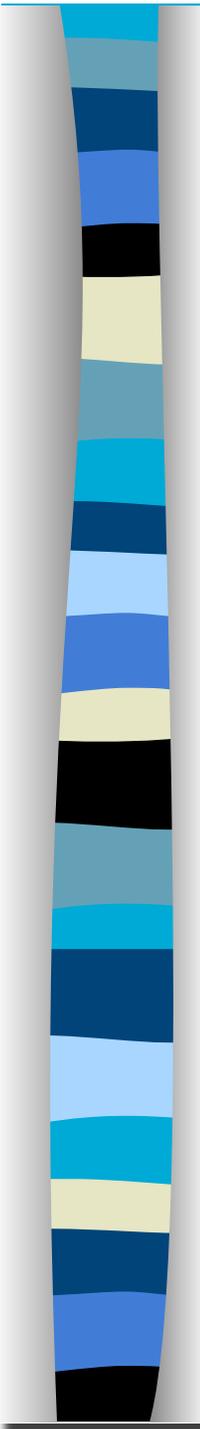
Q. Why should hydrotherapy be administered before meals?

Hydrotherapy Precautions: Question and Answer

Q. Why should hydrotherapy be administered before meals?

A. To avoid interference with food digestion.





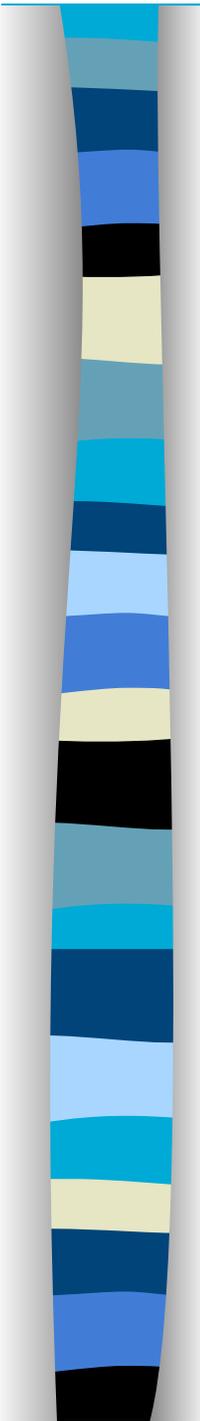
Dry Brushing, page G-15

Materials supplied by the student

- 1 natural bristle dry brush (sold at front desk)
- Sheets and blanket

Basic information

- Removes build-up of dead skin cells on the surface.
- Stimulates lymphatic drainage.
- Improves arthritis, cellulite, hypertension, and depression.
- Same lymphatic benefit as a massage or 20 minutes jogging.
- Work distal to proximal, lateral to medial, toward the heart (centripetally), and toward the intestines.
- Avoid the face.
- Eczema, psoriasis, open or infectious skin, and varicose veins are contraindications for dry brushing.
- Daily for 5 minutes before a shower.

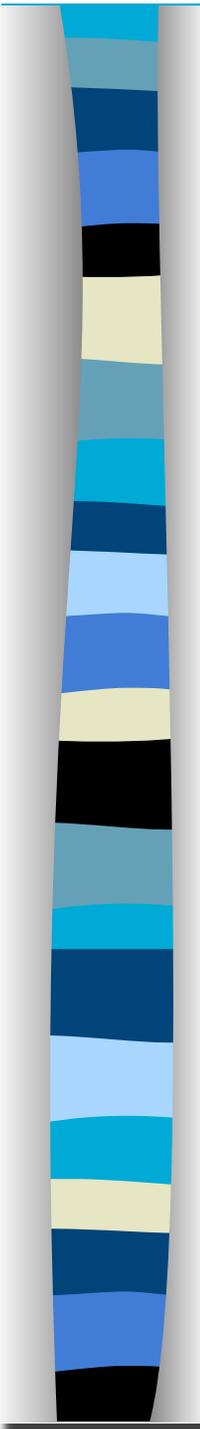


Dry Brushing, page G-15

Generally done with strokes toward the heart, but smaller circular strokes may be interspersed to fit special areas or intensify the treatment.

Occasionally you may wish to wash the brush to remove excess body oils. Detergent and water will suffice for this.

To disinfect (which you must do if to be used on another person) soak the brush for a few minutes in a 10:1 household bleach solution (10 parts water to 1 part household bleach). Then wash with detergent and water. Don't soak too long or the wooden part of the brush will be adversely affected by water.



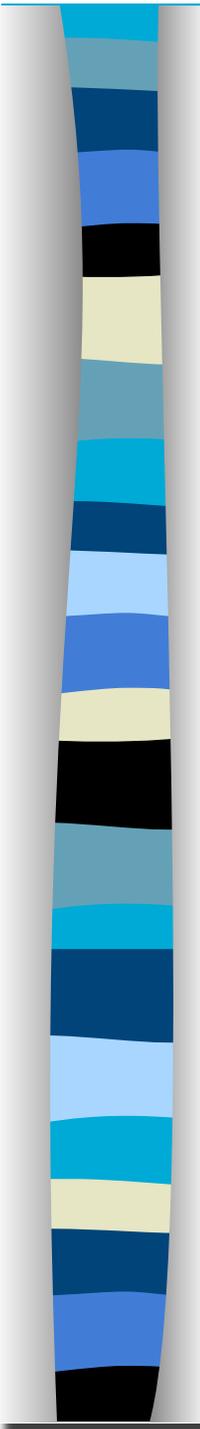
Dry Brushing, page G-16

SUPINE (drape female chest before beginning)

1. Begin with the right side always
2. Do sole of foot
3. Brush dorsum of foot, lower leg, thigh; stroking towards the heart, working lateral to medial
4. Repeat on left foot and leg
5. Right hand and arm (dorsum first), stroking toward the heart, working lateral to medial
6. Left arm
7. Right, then left side of neck, stroking down and out, working lateral to medial
8. Stroke down from the clavicles to abdomen, and/or work horizontally (lateral to medial) across the chest and ribs (avoid nipples)
9. Clockwise strokes around abdomen

PRONE

1. Up back of legs, up and around buttocks (right, then left)
2. Down neck, out shoulders
3. Circle around scapulae
4. Down erector, and/or horizontal strokes, sweeping in from sides to middle, down the back



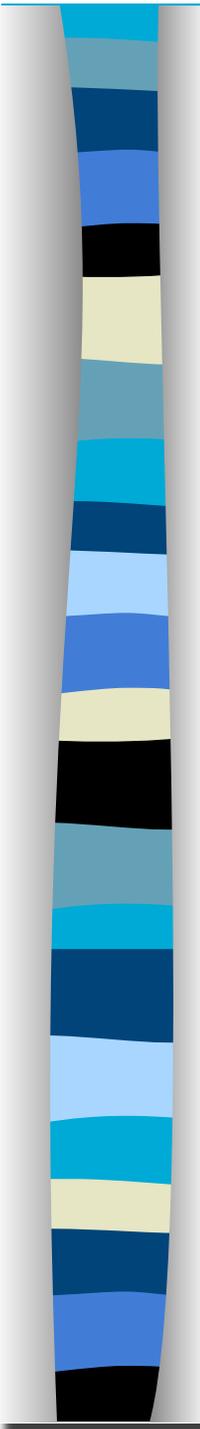
Cold Water Wash, page G-17

Materials supplied by the student

- Washcloth

Materials supplied by TLC

- Plastic tub for cold water
- Cold water for tub (55°-65 °F)

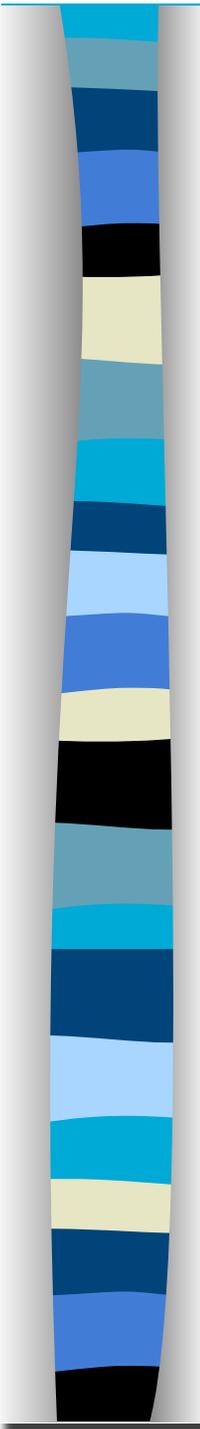


Cold Water Wash, page G-17

Body washing is done in the early morning while still in bed. The body must be warm before washing is done. If you are doing your own body washing, you will find it nice to do it around 5 am. Then you have time to get back in bed and get warmed. The person should always be warm before the washing.

A thick washcloth is used. It is folded then immersed in cold water (55° to 65° F). Squeeze the cloth so it is still good and wet but not dripping. It is important to wash each area quickly and cover it up immediately. After the treatment is done, wrap the person well.

After the body washing the person is not dried off but returns to bed and is covered thoroughly with blankets. The body has to work to re-warm the skin. A friction mitt may be used but has to be dipped in the water much more frequently. In those persons with sensitive skin, a wine glass of vinegar may be added to the water. If one is too sensitive to cold or dislikes body washing, dry brushing may be substituted.



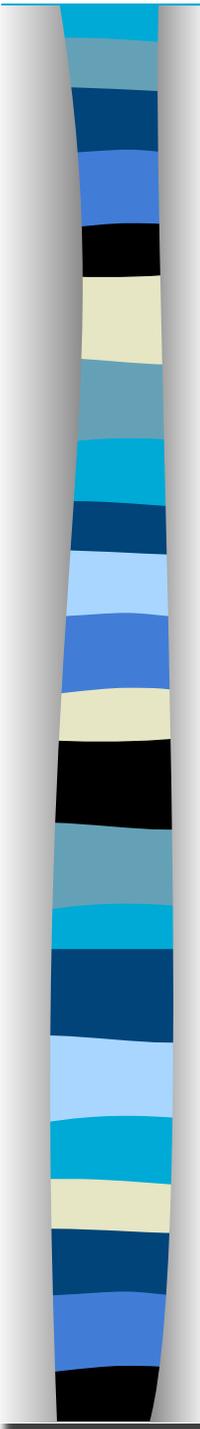
Cold Water Wash, page G-18

PRONE

1. Right neck and back - stroke down to buttocks and back up
2. Repeat on the left side
3. Right Leg-stroke up the outside (including buttocks), down the back, and up the inside of the leg.
4. Repeat on the left side

SUPINE (drape female chest before beginning)

5. Right Leg-stroke up the outside, down the front, up the inside of the leg-take care not to be invasive.
6. Repeat on the left leg.
7. Stroke down and up the right side of the torso.
8. Repeat on the left torso.
9. Stroke around the abdomen (clockwise)
10. Right hand and arm-stroke up the dorsal surface, up the outside, and down the inside-wash 2 times in the axilla and cover quickly.
11. Repeat on left arm
12. Stroke down and out the right side of the neck.
13. Repeat on left side of neck.



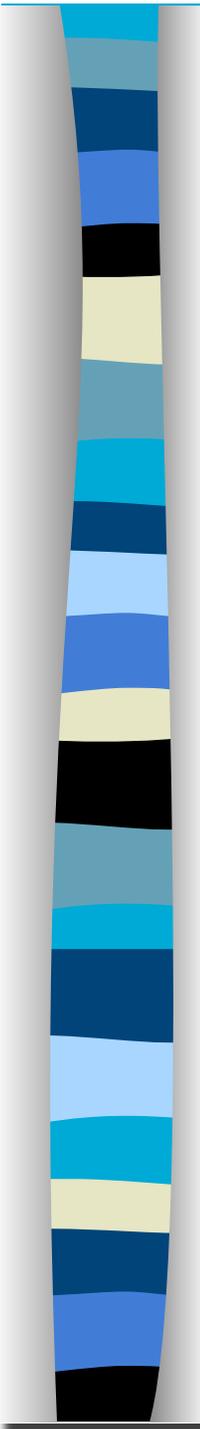
Foot Treatment, page G-19

Materials supplied by the student

- Washcloth
- 2 regular towels

Materials supplied by TLC

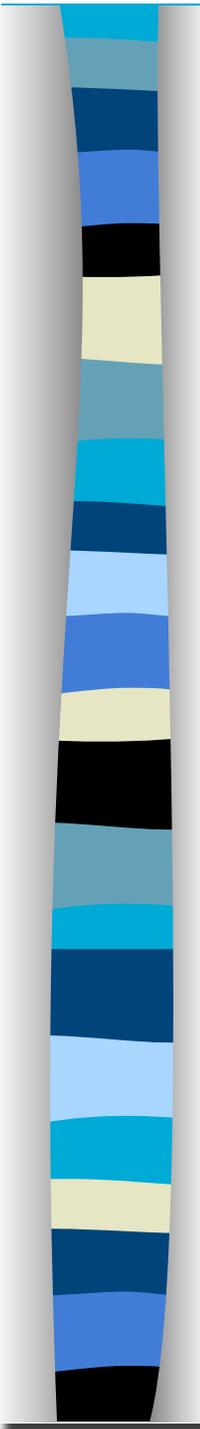
- Plastic tub for soaking feet
- Hot and cold water for the tub
- Mineral salt bath crystals
- Sloughing cream
- Wooden manicure stick
- Moisturizing lotion



Foot Treatment, page G-19

SUPINE

1. Soak feet for 10 minutes
2. Remove one foot and lightly dry it with a towel.
3. Remove dead cuticle skin from each toe nail (manicure stick).
4. Scrub foot with sloughing cream and place back in tub.
5. Rinse sloughing cream from foot.
6. Repeat on other foot.
7. Remove and dry both feet. Moisturize the feet.



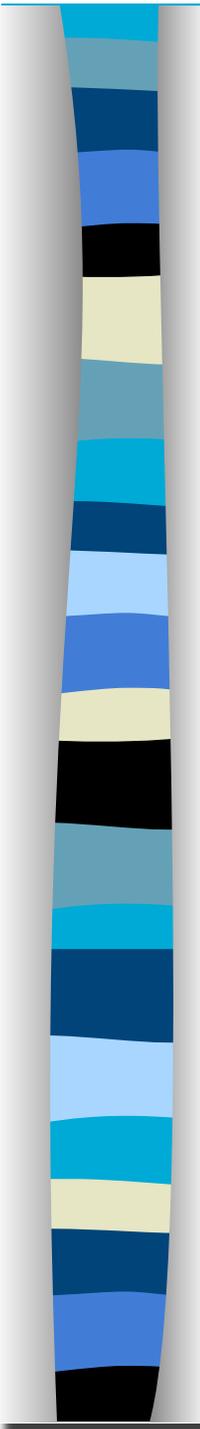
Face Treatment, page G-23

Materials supplied by the student

- Witch Hazel or non-alcohol face toner
- Cotton balls or pads
- Washcloth

Materials supplied by TLC

- Moisturizing cream
- Facial clay mask
- Plastic tub with warm water



Face Treatment, page G-23

SUPINE

1. Clean your hands and client's face with toner as you normally do in Head, Neck, and Face Routine.
2. Apply facial moisturizer and massage the face using small circles along the path of the usual facial massage (remember to use fingers rather than thumbs).
3. Apply warm washcloth to face to open pores and remove moisturizer.
4. Thinly apply clay mixture to face and under chin. Avoid getting clay mixture too close to the eye area and avoid lips and hairline.
5. Let the clay dry.
6. Remove clay with a warm wet washcloth. Rinse cloth when necessary and rinse until all the clay has been removed.
7. Follow with toner to remove all traces of clay.
8. Finish with facial moisturizer or Balancing Infusion (optional).

24b Hydrotherapy: Theory and Technique Demo

Liquid



Ice



Steam

