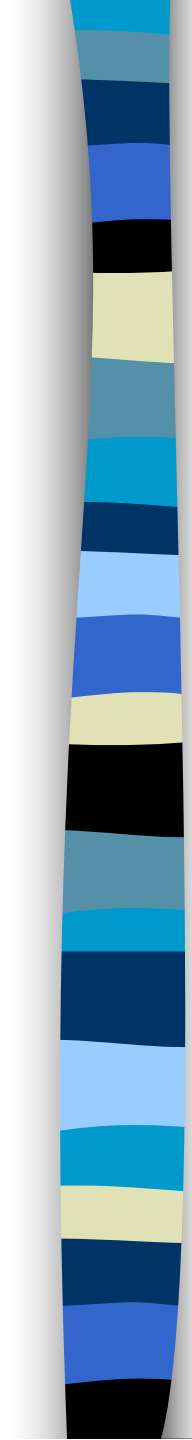
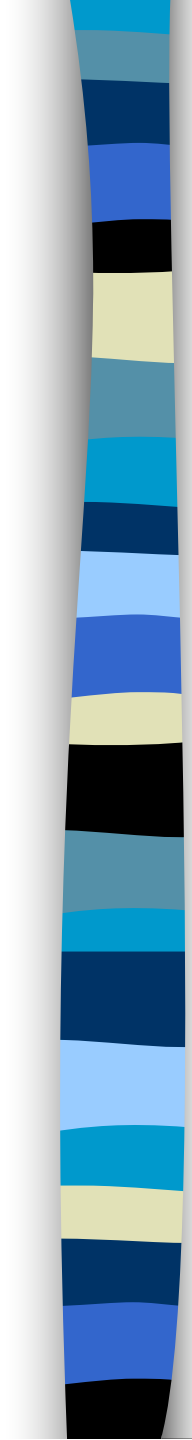


23a Pathology: Medications



23a Pathology: Medications Class Outline

5 minutes	Attendance, Breath of Arrival, and Reminders
10 minutes	Lecture:
25 minutes	Lecture:
15 minutes	Active study skills:
60 minutes	Total



23a Pathology: Medications

Class Reminders

Practical Exams:

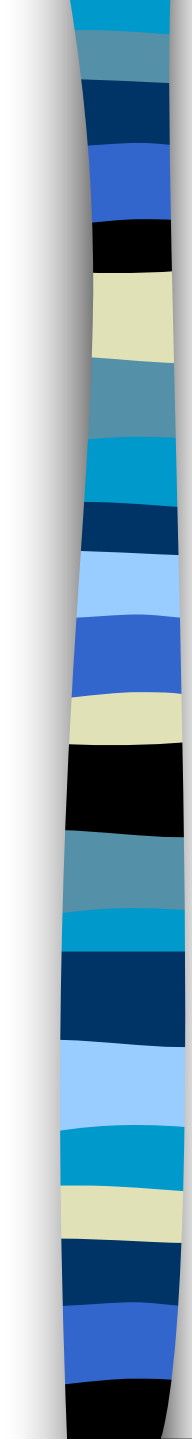
- 23b Swedish: Practical Exam
 - Packet A: 91-94
 - Packet F: 35, 45, 55, and 58
 - Grader evaluated full SOAP notes with date, first and last names. Signatures and dates on intake form
 - **Bring A: 93 for grading**

Assignments:

- Hydrotherapy Supplies for classes 25b, 26b, 27b, and 28b
 - Packet G-1
- 24a Hydro Review Questions (A: 145-158)
- 30a Review Questions (Packet A: 141-158)

Preparation for upcoming classes:

- 24a A&P: Muscular System - Organization of Skeletal Muscle
 - Trail Guide: infraspinatus and teres minor
 - Packet E: 37-40
 - RQ Packet A-151
- 24b Hydrotherapy: Theory and Technique Demo
 - Packet G: 1-14
 - RQ Packet A-152



Classroom Rules

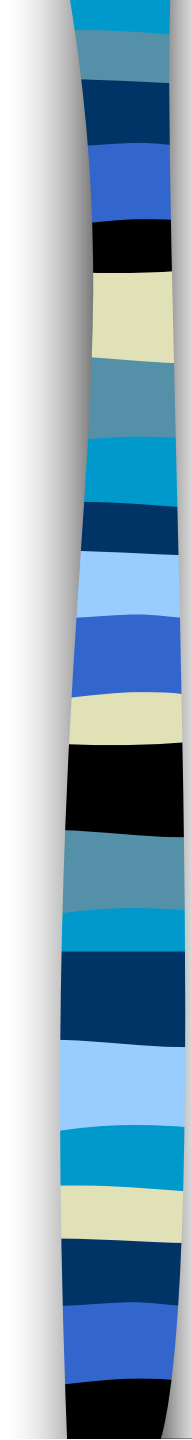
Punctuality - everybody's time is precious

- 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.

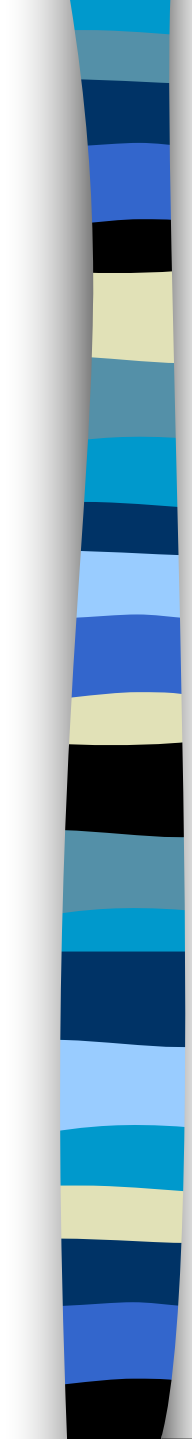


23a Pathology: Medications

E-27

Knowing the effects of medications allows us to properly modify massage treatments.

For testing purposes- Focus on the medication class in **bold**, the effects/side-effects, and massage modifications only.

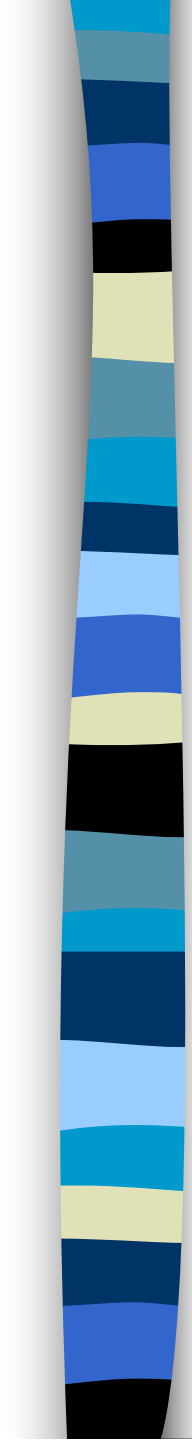


23a Pathology: Medications

Almost one-half of all adults in the United States use at least one prescription drug every month, and close to 12%- that's one in every eight people use five or more prescription drugs within a given month.

What are some questions we might ask when a client lists a medication or multiple medications on their intake form?

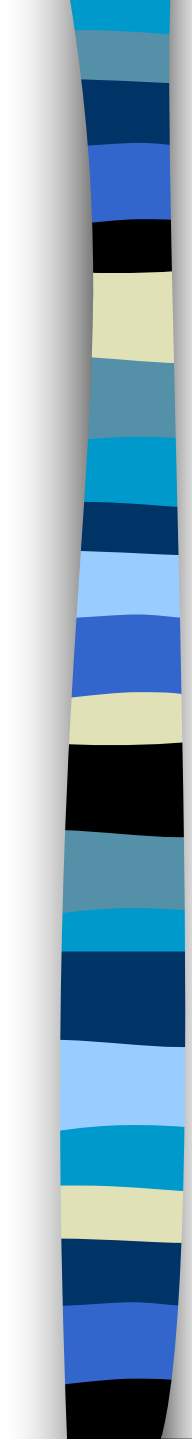
Let's make a list on the white board together.



Medication question examples:

(not in your packet)

- What is this medicine for? The client is the best resource for this question, having a pharmacology book/internet can help too.
- How do you take it? Orally, sublingually, topically, implanted, injected, inhaled, etc. Topicals, implants, and injections sites need to be treated with caution.
- When did you last take it? Don't assume the client takes it regularly. Some meds are as needed, some are 3x a day.
- How much did you take? If someone took 400mg of ibuprofen for their headache, you may have a general idea of how much that is. If someone told you that they take 100mg of lamotrigine or 5mL of promethazine-Dm, you might ask additional questions.

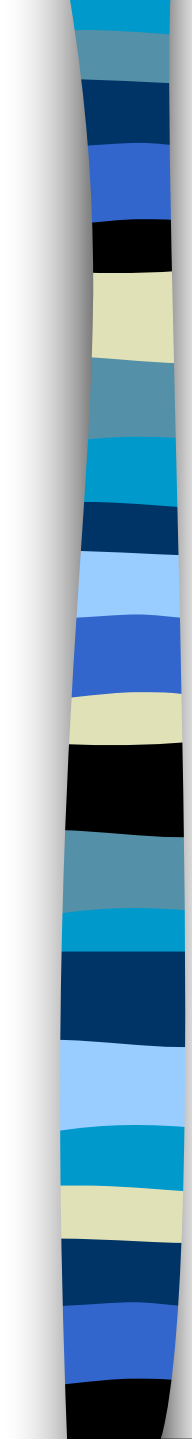


Medication question examples:

(not in your packet)

- Is this prescribed or OTC? Just covering our bases, it's better to have more details than not.
- Are you experiencing any side effects? Could massage benefit these side effects- nausea, upset stomach, muscle pain, restlessness, lethargy, etc.
- Have you had massage while being on this medication before? Do they know how their body reacts during massage when medicated?

Consider thinking of massage as a 'medication', how would this 'dose' of massage effect their dose of medication?



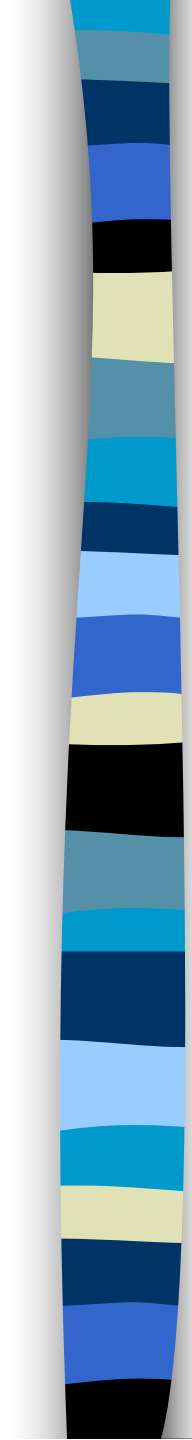
Medication Vocabulary

Bioavailability- The portion of a substance that is accessible at the site of physiological activity

Black box warning- Strictest warning issued by the FDA when a substance is associated with a substantial risk of harm.

Durations of action- The length of time a particular drug is effective.

Half-life- The period of time required for the concentration of a drug, usually measured in the plasma, to be reduced by one-half.



Medication Vocabulary

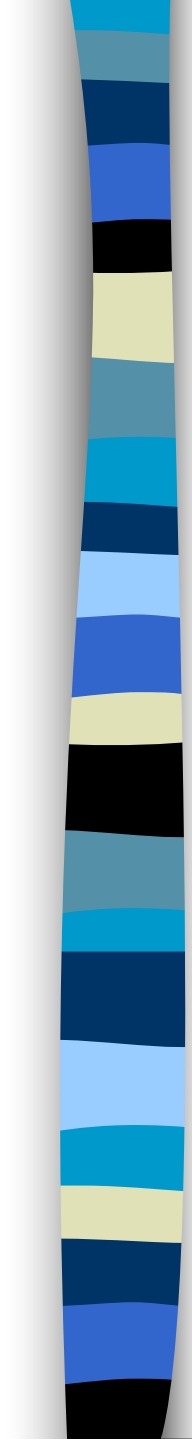
Onset of action- The time it takes between the administration of a drug and when the effects begin to take place.

Over the counter (OTC)- Refers to a drug that is available without a prescription

Parenteral- A non-oral administration route for a medication (for example, injection, topical, or mucous membrane application)

Peak action- The time after administration of a drug and when it has its strongest effect.

Prescription- An instruction or recommendation for a treatment from a medical practitioner—in this context referring to instructions to take specific medications in a specific way.



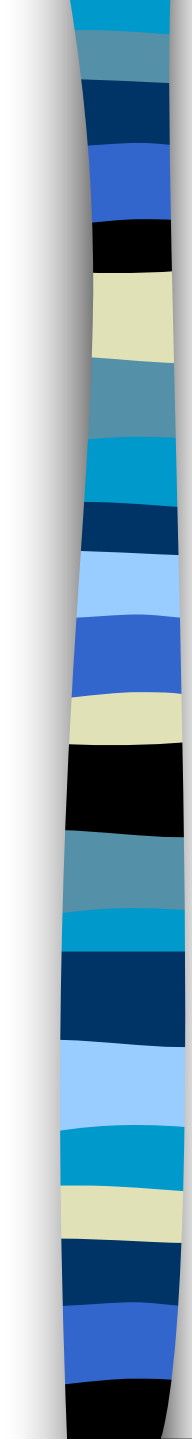
Anti-anxiety Using more stimulating strokes throughout the massage to help avoid dizziness and fatigue at the end of the session.

Benzodiazepines: Short-term anxiety, Seizures, Insomnia, Convulsions

Examples: Valium, Ativan, Xanax

Effects / Side Effects: CNS depression, poor reflexes, dry mouth, fatigue/ feeling unusually exhausted, physical dependency

Modifications: Massage conservatively to respect client's potential reduced ability to adapt to external changes. Using more stimulating strokes throughout the massage to help avoid dizziness and fatigue at the end of the session.



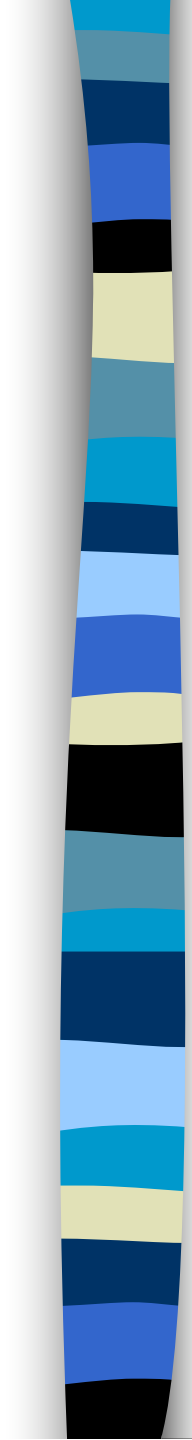
Anti-anxiety, continued

Buspirone HCL: Short-term anxiety, General anxiety

Examples: BuSpar

Effects / Side Effects: Dizziness, headaches, nausea

Modifications: Because this medication does not involve sedation or drowsiness, it has fewer implications for massage therapy. However, it is still necessary to work conservatively because the normal muscle tone has been altered.



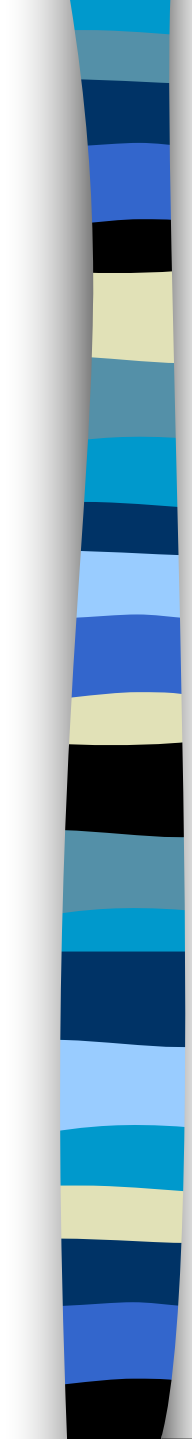
Antidepressant Antidepressants all have some side effects, although these are usually temporary and mild. It takes time for the body to adapt to these changes, however; four weeks or more are often needed for the drugs to take effect. Massage therapy may exacerbate these symptoms, so the therapist should take care not to over-treat, especially when a client is just starting a new course of drugs.

Tricyclics: Depression

Examples: amitriptyline, desipramine, nortriptyline, clomipramine, amoxapine

Effects / Side Effects: Constipation, dry mouth, sedation, dizziness, light-headedness

Modifications: Clients may need some gently stimulating strokes at the end of the session to come back to full alertness.



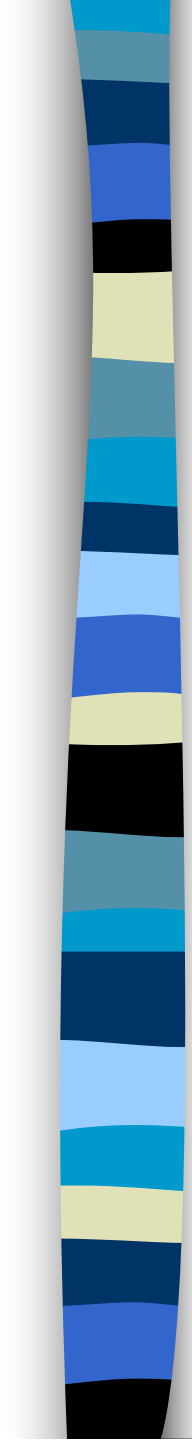
Antidepressant, continued

MAOIs: Depression

Examples: Nardil, Parnate, Emsam, Marplan

Effects / Side Effects: Possible dangerous interactions with other drugs and foods, drowsiness, dizziness

Modifications: MAOIs and other antidepressants have the tendency to cause excessive drowsiness and dizziness; massage must be performed and concluded appropriately.



Antidepressant, continued

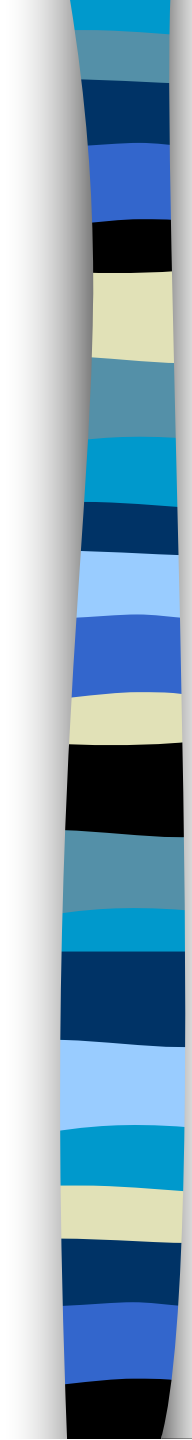
SSRIs / SNRIs: Depression, anxiety, eating disorders

Examples: Lexapro, Prozac, Zoloft, Pristiq, Cymbalta, Effexor, Wellbutrin, Remeron, Pristiq

Effects / Side Effects: Fatigue, headache, tremor, dizziness, drowsiness, insomnia, nervousness, agitation, dry mouth, nausea, diarrhea, vomiting, decreased libido.

Note: Most side effects occur with a new prescription and can be expected to subside within a few weeks.

Modifications: Accommodating for side effects is important, as is counseling clients to consult with their physicians if symptoms interfere with function or quality of life.



Anti-inflammatory and analgesic Inflammation is frequently a source of nerve irritation at acute or chronic sites of tissue damage. Consequently, many analgesics work to reduce pain sensation by reducing or inhibiting the inflammatory process, changing tissue response. Other analgesics alter pain perception in the central nervous system (CNS), but do not affect inflammation. And still other drugs stabilize excitatory neurotransmitters, which interferes with the perception of pain.

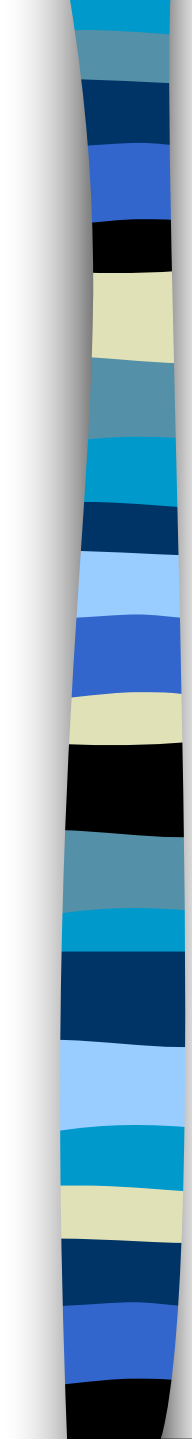
Salicylates: Inflammation, Fever, Anticoagulant

Examples: Aspirin, Bayer Aspirin

Effects / Side Effects: Mild gastrointestinal discomfort, heartburn, nausea

Modifications: Reduced pain perception and inhibited inflammation means that compromised tissue may not send a strong signal about pain. Observation and careful palpation are key in this situation.

Bodywork needs to be conducted conservatively to avoid overtreatment, and massage with intrusive pressure must be used with caution. Also, the tendency for peripheral vasodilation raises the risk for hypotension (dizziness and lethargy) and chilling during and after a massage.



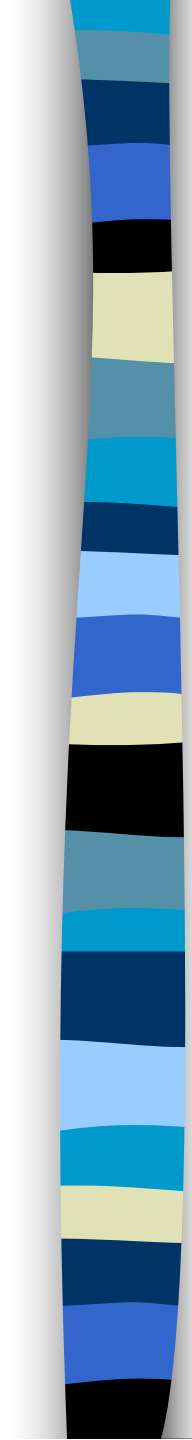
Anti-inflammatory and analgesic, continued

Acetaminophen: Fever, pain

Examples: Tylenol, paracetamol

Effects / Side Effects: Mild gastrointestinal discomfort, loss of appetite, itching, rash, headache. Note: Long-term use or use with alcohol can cause liver damage.

Modifications: As with other pain medications, caution must be used to avoid overtreatment.



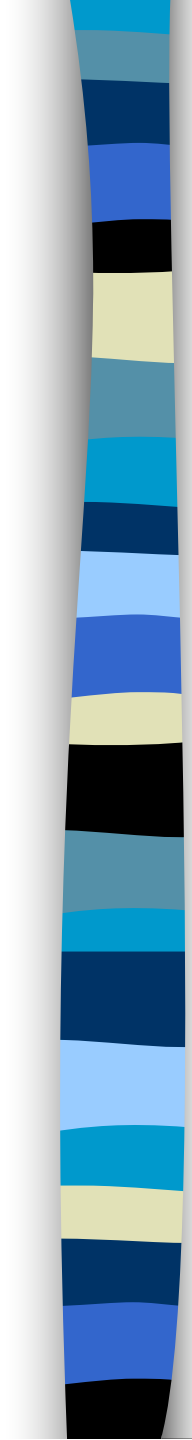
Anti-inflammatory and analgesic, continued

Nonsteroidal Anti-inflammatory drugs (NSAIDs): Inflammation, pain

Examples: Celebrex, Lodine, ibuprofen / Advil®, Aleve / naproxen sodium, Motrin

Effects / Side Effects: Stomach pain, heartburn, peptic ulcers, headaches, dizziness, sweating, rash, back pain. Note: Some NSAIDs can increase the risk of heart failure, heart attack, and stroke.

Modifications: NSAIDs are often used for musculoskeletal pain, so it is not unusual for clients to use them at the same time as receiving massage therapy. It is important to work conservatively in this situation to avoid inadvertent overtreatment.



Anti-inflammatory and analgesic, continued

Narcotics and Mixed Narcotics: Pain, cough, g.i. tract sluggishness

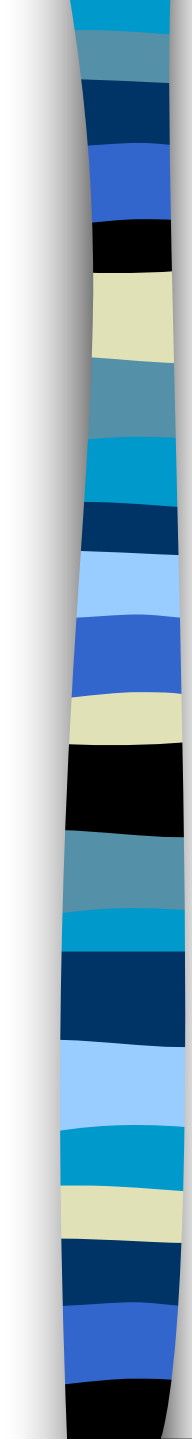
Examples: Demerol, OxyContin, Percocet, Lortab, Vicodin, fentanyl, Dilaudid, Norco, morphine, codeine

Effects / Side Effects: Altered sensation, euphoria, addiction, hypotension, constipation

Modifications: A client taking these medications has a problem that is too extreme to be managed with less intrusive analgesics. In the presence of narcotic analgesics, interference with pain perception is more complete, and appropriate caution is called for.

Don't use aggressive stretching, contract/relax techniques, or any massage that involves intrusive pressure. Hydrotherapy that involves very hot or very cold applications should also be avoided.

The risk of dizziness with these drugs calls for caution at the end of the session; it may be a good idea to stay with clients at least while they come to a sitting position. Clients taking narcotic analgesics may be prone to mood swings and difficulties with accurate communication.



Anti-inflammatory and analgesic, continued

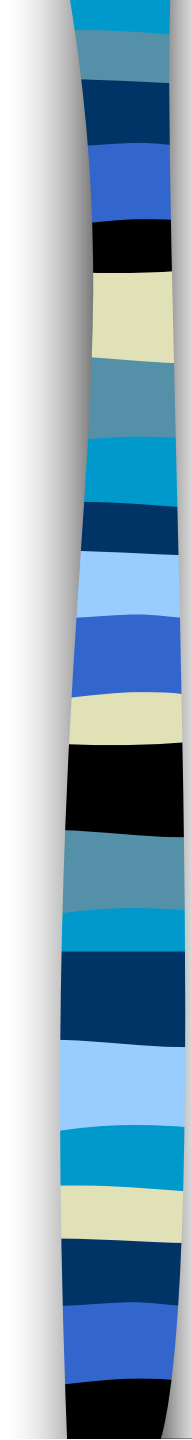
Anticonvulsants: Partial seizures; neuropathy, fibromyalgia, postherpetic neuralgia.

Examples: clonazepam, lamotrigine, divalproex, topiramate, gabapentin, levetiracetam

Effects / Side Effects: Dizziness, drowsiness, lack of coordination, tremors, constipation, dry mouth

Modifications: The main caution for clients who use anticonvulsants has to do with the painful conditions that may call for their use. Careless massage therapy may exacerbate symptoms of fibromyalgia, neuropathy, or postherpetic neuralgia.

The risk of dizziness with these drugs calls for caution at the end of the session; it may be a good idea to stay with clients at least when they come to a sitting position.



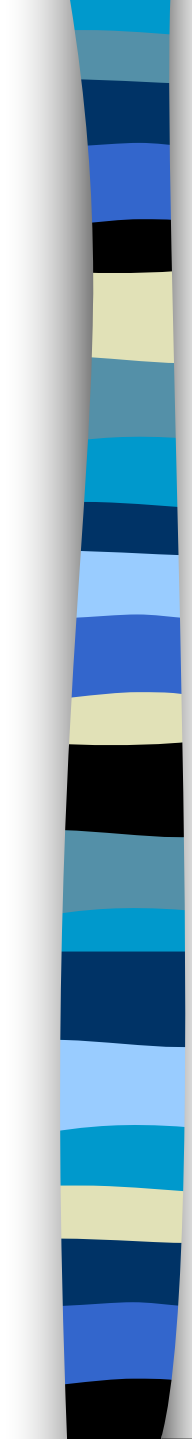
Anti-inflammatory and analgesic, continued

Topical Pain Medications: Inflammation, pain. Topical pain medication can be administered as a gel, cream, lotion, or patch.

Examples: Lidoderm, capsaicin, arnica cream

Effects / Side Effects: Skin irritation and damage

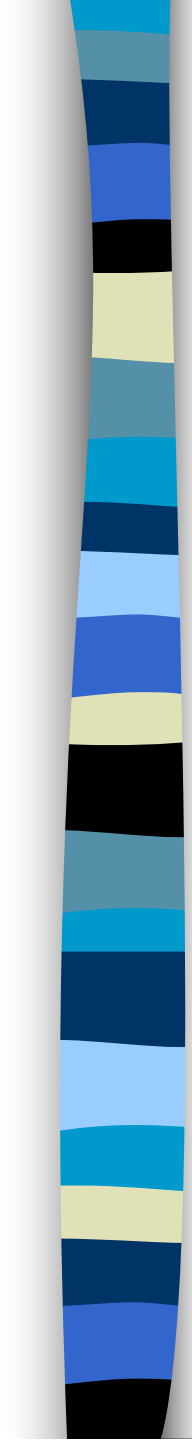
Modifications: In the interest of being conservative, it is a good practice to avoid the area for several inches around the site of application until the client has bathed and it is safe to assume that the bioactive elements of the medication have been dispersed.



Muscle Relaxants: Muscle relaxants are prescribed to minimize acute spasms related to trauma or anxiety, or to help with chronic spasticity from central nervous system damage as seen with multiple sclerosis, stroke, spinal cord injury, cerebral palsy, or other CNS dysfunction. They can act on the brain, on the spinal cord, or in the muscle tissue itself.

A client who uses muscle relaxants is not inherently relaxed, although their tissues may seem that way. Some of these drugs interfere with muscle protection reflexes, so the risk of overtreatment with deep tissue work, range of motion exercises, or stretching is significant.

They may also be described as skeletal muscle relaxants or smooth muscle relaxants. Smooth muscle relaxants are used for digestive tract or cardiovascular issues.



Muscle Relaxants, continued

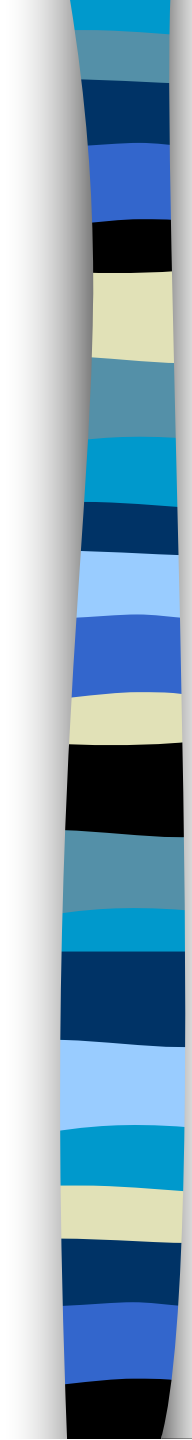
Skeletal Muscle relaxants: Suppress reflexes that tighten muscles in response to stretching or damage, reduction of painful spasms, and/or weakness in muscles that are pathologically tight.

Examples: Soma, baclofen, Flexeril, Dantrium, Skelaxin, Robaxin, Norflex, Botox

Effects / Side Effects: Weakness, drowsiness, dizziness, headache, slowed heart rate, itching, rash (allergic reaction may cause asthma and/or anaphylaxis)

Modifications: May induce a parasympathetic state, which may then be intensified by massage. Client may be exhausted at the end of a session; finish with techniques that enhance alertness, and leave time for the client to make the transition back to full alertness. Do not try to create an increased range of motion while the client is in an altered state.

Avoid massage at the site of Botox (Botulinum toxin) injections for several hours after the treatment so that the medication is not dispersed beyond the area for which it is intended.



Cardiovascular Disease Help minimize a sympathetic response or to dilate peripheral blood vessels. Parasympathetic state may be intensified by massage, leaving the client dizzy, fatigued, and lethargic.

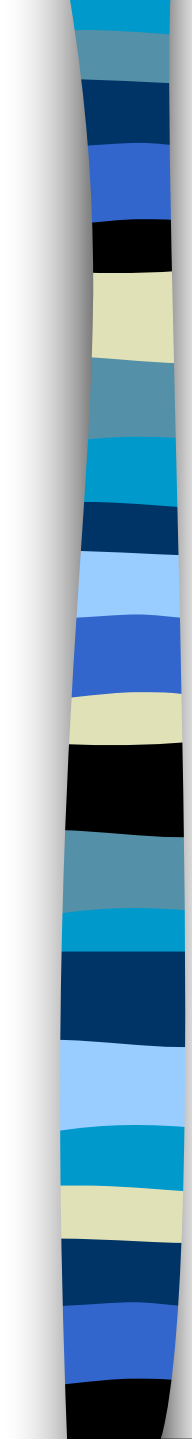
Ending a session with strokes that are more stimulating may help to minimize the feeling of sedation, as long as the strokes fit into a protocol that is suitable for a person with compromised cardiovascular health. It is a good strategy to stay close by while these clients come to a sitting position after their massage session.

Beta-blockers: Antihyperintensive. May effect the heart, bronchi, blood vessels, and the uterus. Lower blood pressure and cardiac output. Treats angina, hypertension, anxiety, and some other disorders.

Examples: atenolol, betaxolol, bisoprolol, metoprolol succinate, nebivolol

Effects / Side Effects: Slow heart rate, dizziness, fatigue, possible depression, memory loss, hallucinations, and nightmares. Stopping use suddenly may cause angina.

Modifications: Can lead to excessively low blood pressure, especially when the client is in a relaxed state. Hydrotherapy is generally safer with local applications than are systemic immersions in hot tubs, saunas, or other facilities.. It may be wise to finish the massage with strokes that promote alertness and wakefulness, and to leave the client ample time to come to full speed after the session.



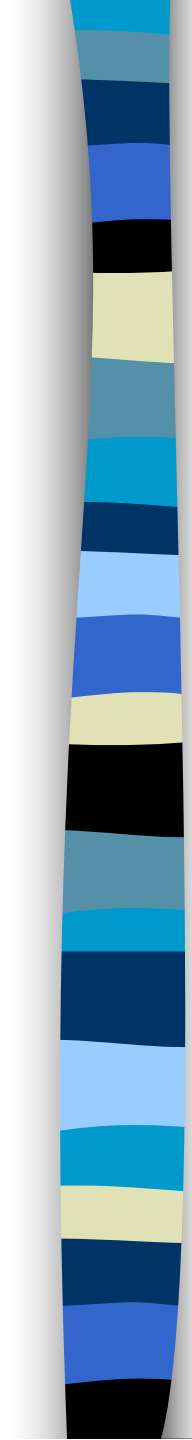
Cardiovascular Disease, continued

Calcium channel blockers: Anti-hypertensive drugs block the movement of calcium ions in smooth and cardiac muscle tissue resulting in vasodilation and more efficient myocardial function. They are used for hypertension and long-term (not acute) angina.

Examples: benzothiazepines, phenylalkylamines, dihydropyridines

Effects / Side Effects: Hypotension and bradycardia, flushing, headache, heartburn, peripheral swelling, headache, dizziness, occasional chest tenderness

Modifications: Because flushing and dizziness are issues with calcium channel blockers, massage should try to minimize the risk of exacerbating these: less emphasis on big, draining strokes and more emphasis on smaller, less circulatory strokes is appropriate. Avoid heat-based hydrotherapy that might promote flushing. Adjust positioning or use bolsters if chest tenderness is present.



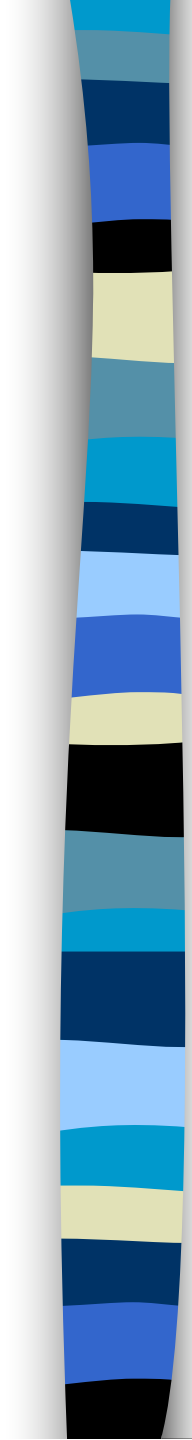
Cardiovascular Disease, continued

ACE inhibitors: ACE inhibitors work by limiting the action of an enzyme that causes vasoconstriction. They promote the excretion of sodium and water, reducing load on the heart. They are used to control hypertension and heart failure.

Examples: Lotensin, Captopril, Vasotec, fosinopril, Prinivil, Zestril

Effects / Side Effects: Swelling of the face and limbs, dry cough, fatigue, headache, possible hypotension

Modifications: As with other drugs for cardiovascular disease, excessive hypotension is a possible side effect. Clients may experience fatigue, dizziness, and lethargy if gentle invigorating strokes are not administered toward the end of the session.



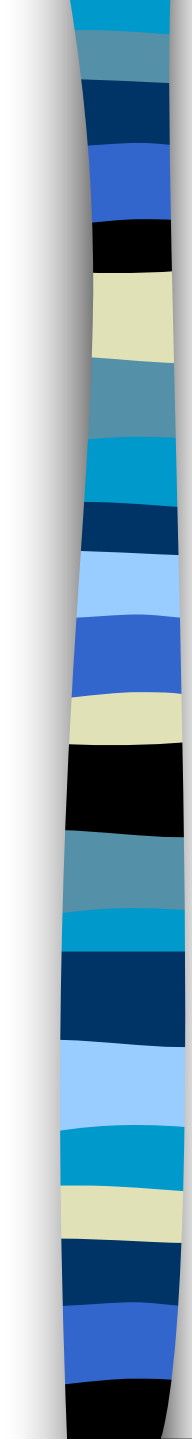
Cardiovascular Disease, continued

Digitalis: Increases the force of the heartbeat by boosting calcium in cardiac muscle cells; it also slows the heartbeat through action in the CNS. It is used to treat arrhythmia and heart failure.

Examples: Lanoxin, digoxin

Effects / Side Effects: Arrhythmia, agitation, fatigue, muscle weakness, hallucinations, dizziness, vertigo, gastrointestinal (GI) upset

Modifications: Clients who take any form of digitalis to control heart failure are not good candidates for rigorous circulatory massage. Invigorating strokes to conclude a session must be chosen to support alertness rather than circulatory flow.



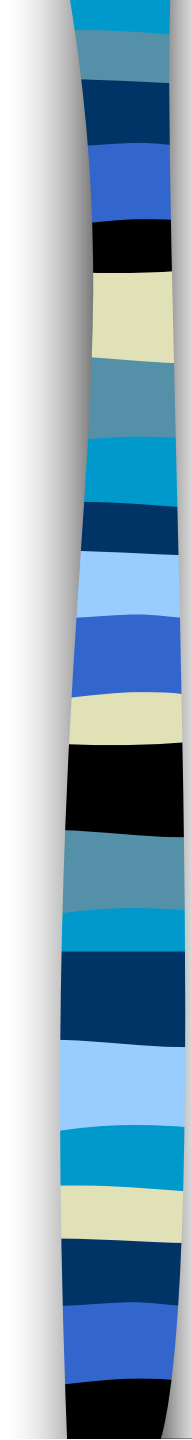
Cardiovascular Disease, continued

Anti-angina medications: Reduce myocardial oxygen demand, or they increase the supply of oxygen to the heart, or both. Chronic angina is treated with beta-blockers or calcium channel blockers. Acute angina is typically treated with various nitrates. These cause vasodilation, especially of veins, leading to decreased load on the heart. They are typically dissolved under the tongue for uptake via mucous membranes or applied with a skin patch or ointment for longer-lasting effect.

Examples: nitrates, calcium antagonists, beta blockers, ranolazine

Effects / Side Effects: Nausea, constipation, headache, dizziness, fast heartbeat, dyspnea, light-headedness, flushing, irritation at patch site

Modifications: If a client has a transdermal patch for anti-angina medication, that area and the adjacent tissue must be avoided so that dosage is not influenced. Clients taking these medications have the same risk of hypotension, flushing, and dizziness seen with other cardiovascular drugs, so massage therapy must be adjusted to avoid exacerbating these side effects.



Cardiovascular Disease, continued

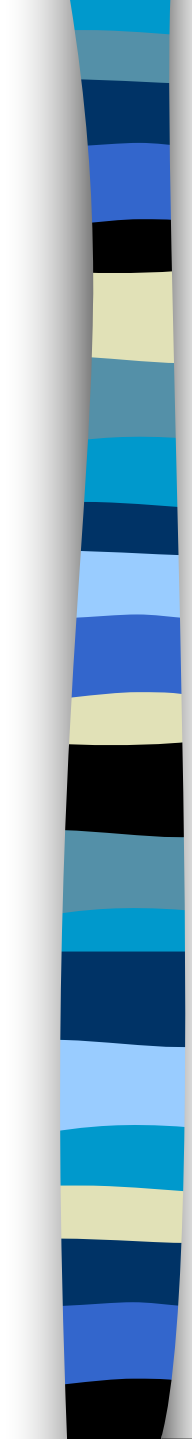
Anti-lipemic/Statins: Cholesterol-lowering drugs work by sequestering bile, or by inhibiting cholesterol synthesis. Bile-sequestering drugs promote the excretion of bile in stool, so the liver must use more cholesterol in bile manufacturing. Cholesterol synthesis inhibitors interfere with the ability of the liver to make cholesterol. Both strategies lead to lower low-density lipoprotein levels in the blood.

Examples: Lipitor, Lescol, Lipostat, Crestor, Zocor

Effects / Side Effects: GI pain, constipation, increased risk of gall- stones. Some anti-lipemics can cause leg cramps, fatigue, hypertension, dizziness, depression, and memory loss.

Note: Some anti-lipemic drugs are associated with a risk of muscle pain and injury along with a small chance of rhabdomyolysis, a serious kidney disorder.

Modifications: Massage may help with GI pain and constipation related to cholesterol management drugs, but if symptoms persist they need to be pursued with a doctor. If a client has musculoskeletal symptoms related to medication use, massage therapy may help, but it is important for that person to consult with the prescribing physician.



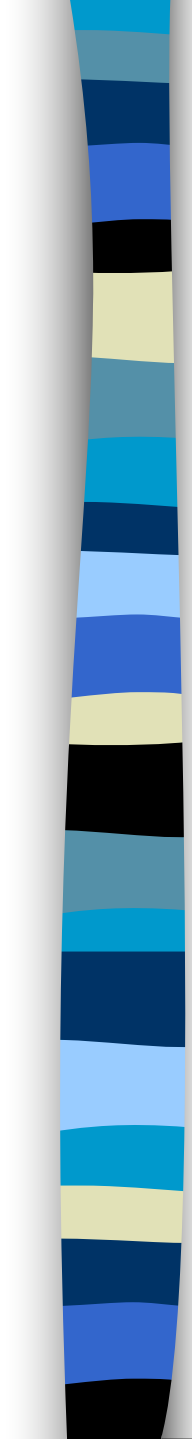
Cardiovascular Disease, continued

Diuretics: Fluid retention. Thiazide diuretics prevent sodium from being reabsorbed in the kidney. As it is processed into urine, sodium then pulls water along with it. Loop diuretics target specific parts of the nephron to prevent water and salt reabsorption, but can control the loss of other electrolytes more carefully. Diuretics are used to treat hypertension, heart failure, pulmonary edema, and renal failure.

Examples: Aldactone, Bumex, Esidrix, Lasix, Demadex, Zaroxolyn

Effects / Side Effects: Potassium depletion and other electrolyte imbalances that can cause arrhythmia, nausea, vomiting, headache, weakness, fatigue, cough, GI upset

Modifications: Rigorously applied massage may put an excessive load on the kidneys. Resting hypotension may also be a problem for people taking these medications. Electrolyte changes can contribute to muscle cramps. This needs to be addressed by a doctor rather than by a massage therapist.



Cancer Cancer drugs or chemotherapy drugs are a large group that share the goal of attacking cancer cells, cancer drugs are generally toxic to the whole body. Newer drugs can target cancer cells more carefully, but still tax the body as a whole. Some additional drugs are often prescribed to address the side effects of cancer drugs.

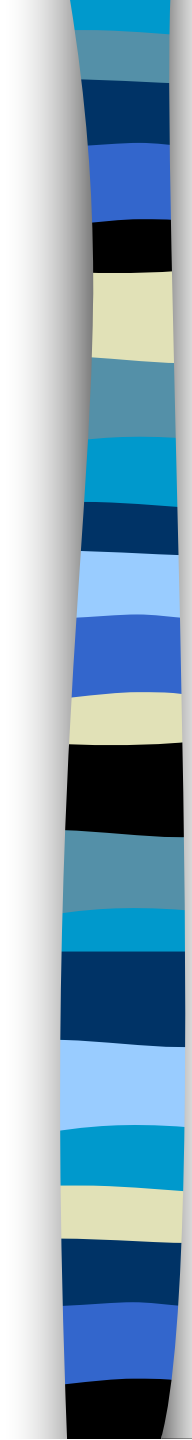
Massage should be applied very conservatively, and circulatory massage should be minimized. Timing of the session should be related to excretion rates of the drug, and discussed with the client's physician in detail. Therapist may need to wear gloves in medications are excreted through the client's skin.

Cancer drugs: Target cancer cells and kill them, block the growth of the cells, block the vascular feeding of the cells, or mitigate side effects of other cancer treatment drugs.

Examples: alkylating agents, nitrosoureas, antimetabolites, anti-tumor antibiotics, plant alkaloids, corticosteroids, etc

Effects / Side Effects: Fatigue; hair loss; GI irritation and nausea; bone marrow suppression with anemia, thrombocytopenia, and neutropenia; bruising and bleeding; neuropathy; "chemo brain" (poor concentration and memory loss); and more

Modifications: Massage in the context of cancer treatment is a complicated topic and should be done with advanced education. Always get appropriate training, and consult the client's health care team to minimize the risk of causing inadvertent harm. Massage does not spread cancer.



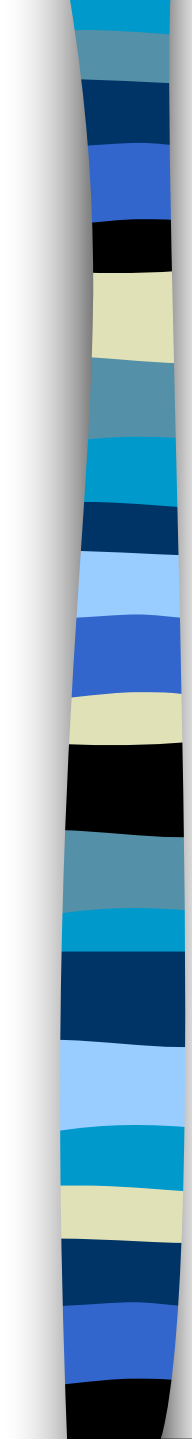
Clot Management Medications to manage blood clots come in three basic forms: anticoagulants to prevent the formation of new clots by inhibiting clotting factors; antiplatelet medications to prevent the clumping of platelets to form new clots; and thrombolytics, which are used to dissolve pre-existing clots. Thrombolytics are used only in emergency situations (i.e., in early treatment for heart attack or ischemic stroke).

Anticoagulants: Some anticoagulants are administered by injection; others are taken orally. All of them alter the formation of clotting factors in the liver to prevent the formation of new clots, although they do not dissolve pre-existing clots. These medications are used for people with atrial fibrillation or a high risk of deep vein thrombosis (DVT) or pulmonary embolism; they are also prescribed for people using hemodialysis. Heparin may also be used in orthopedic surgery to reduce the risk of postsurgical DVT.

Examples: Lovenox, heparin, Coumadin, Xarelto

Effects / Side Effects: Bruising, bleeding, thrombocytopenia, back pain, bradycardia, hypotension

Modifications: All blood-clotting medications carry a risk for bruising, even with relatively light massage. Furthermore, the need for these medications indicates a tendency to form blood clots that may contraindicate all but the gentlest forms of bodywork.



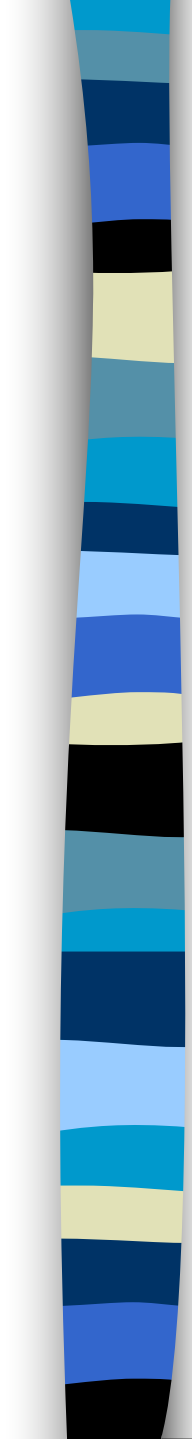
Clot Management, continued

Anti-platelets: These drugs prevent platelets from clumping at the site where a clot might otherwise form. Risk of embolism.

Examples: Aspirin, Plavix, Brilinta, Effient, Persantine

Effects / Side Effects: Bruising, bleeding, thrombocytopenia, flushing, rash, GI pain, headache

Modifications: Although anti-platelet drugs are typically less powerful than anticoagulants, the risk of bruising must still be respected for clients who use them.



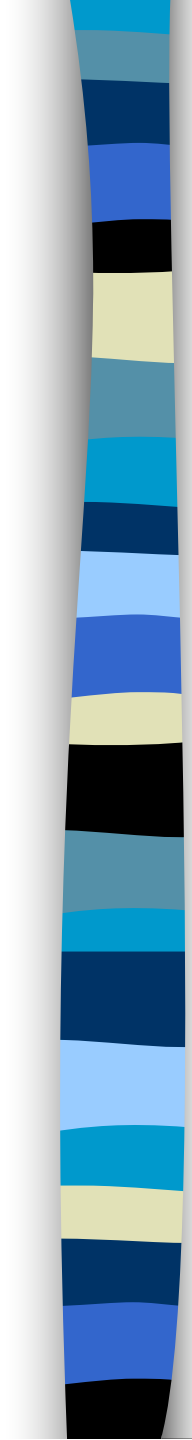
Diabetes management When type 2 diabetes cannot be managed by diet and exercise alone, other interventions like starting oral glucose management drugs, and may culminate with the supplementation of insulin in various forms. Insulin cannot be taken orally; it must be injected.

Type 1 diabetes is managed only with insulin.

The implications for diabetes and massage therapists are many and complicated. While many people with diabetes manage their disease well and minimize their risk for secondary complications, others are prone to several problems that pose serious cautions for massage, including systemic atherosclerosis, an increased risk of stroke, diabetic ulcers, and peripheral neuritis/neuropathy, to name a few.

Furthermore, massage therapy appears to lower blood glucose, at least temporarily. is challenge to homeostasis may be enough to trigger a hypoglycemic episode. Massage therapists with diabetic clients should be aware of signs of hypo- and hyperglycemia and should consult with those clients about how best to address their needs in an emergency.

Insulin: Synthetic insulin comes in several forms that can be rapid, short-, intermediate-, or long-acting, or mixed. In most cases, it must be injected or applied with a pump under the skin, but one inhalable form (Afrezza®) is available for people with type 1 diabetes who also use an injectable long-acting form of insulin.



Diabetes management, continued

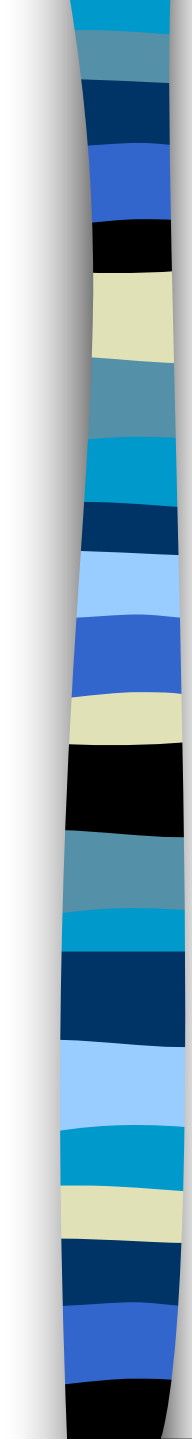
Oral glucose management: These drugs work in a variety of ways to inhibit the production of sugar in the liver, to improve the output of insulin in the pancreas, and to increase the sensitivity of insulin receptors on target cells.

Examples: Glucophage/metformin, Acarbose, Welchol, Bromocriptine, DPP-4 inhibitors, Meglithinides

Effects / Side Effects: Headache, muscle pain, weakness, nausea, diarrhea

Modifications: Any clients who manage their diabetes with any combination of drugs and insulin must be monitored carefully for blood glucose stability. As with insulin, it is safest to work with these clients after the peak of drug activity.

If a client reports muscle pain after starting on any form of glucose management drugs, it is important to refer them to their doctor to see if an adjustment in dosage might help.



Diabetes management, continued

Insulin: Insulin is a protein-based hormone that would be destroyed by digestive juices if taken orally. Consequently, it is administered by injection, either through multiple daily injections or through an insulin pump. It decreases blood glucose by helping to deliver glucose to cells.

Examples: Humalog, Apidra, Lantus, Levemir, Humulin, Afrezza

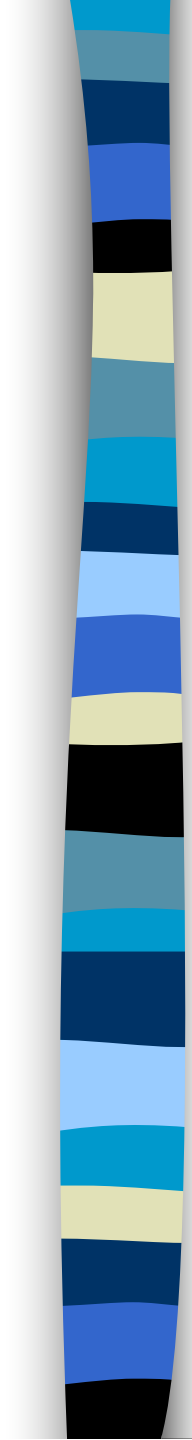
Effects / Side Effects: Irritation, bruising, hardening of the skin at the injection site, weight gain, peripheral edema

Modifications: Injection sites need to be locally avoided in order not to interfere with normal uptake of the drug. It is best to avoid massaging the injection area for roughly for 24 hours.

Because blood glucose stability is an issue for diabetic clients, it is best for them to receive massage in the middle of their insulin cycle, rather than at the end or at the beginning.

It is useful for a new client to check blood glucose before and after the session, so that if they need to take in sugar in an easily accessible form, the therapist can plan ahead and have some juice, milk, or glucose tablets available.

Call emergency services if the client continues to show lethargy or confusion after receiving glucose.



Thyroid Supplements Hypothyroidism is typically treated with supplements to replace thyroid secretions T3 (triiodothyronine) and T4 (thyroxine). Levothyroxine sodium is chemically identical to the thyroid secretion T4. It is meant to be converted in the liver to bioactive T3. It is successful for many but not all people with hypothyroidism. Some patients are not efficient converters of T4, so they need to supplement T3. T3 has traditionally been available in the form of desiccated animal glands, but a synthetic form of T3 is now available, along with a thyroid supplement that includes both T3 and T4.

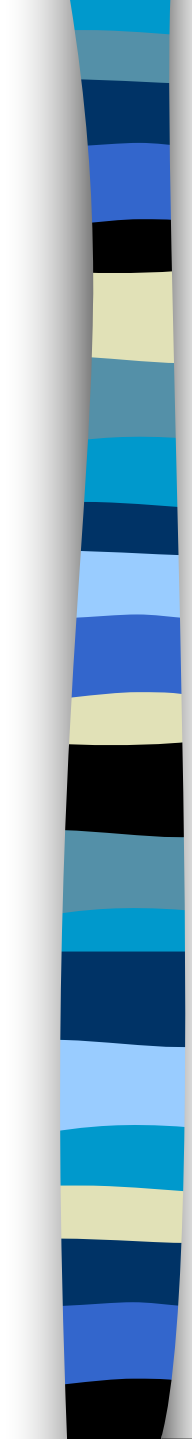
Levothyroxine Sodium: Synthetic thyroid hormones mimic the action of naturally occurring thyroid hormones to boost protein synthesis in cells, promote the use of glycogen stores, increase heart rate and cardiac output, and increase urine output.

Examples: Synthroid, Levoxyl

Effects / Side Effects: Increased appetite, weight loss, sweating, headache, nervousness, insomnia, anxiety

Modifications: New users of synthetic thyroid supplements may go through a temporary period of nervousness, agitation, and insomnia, which massage therapy may help to improve. If these symptoms persist, the dosage may not be correct, and the person should consult with the prescribing physician.

Someone who has been taking synthetic thyroid supplements for a long time probably has few significant side effects and requires little in the way of massage therapy accommodations.



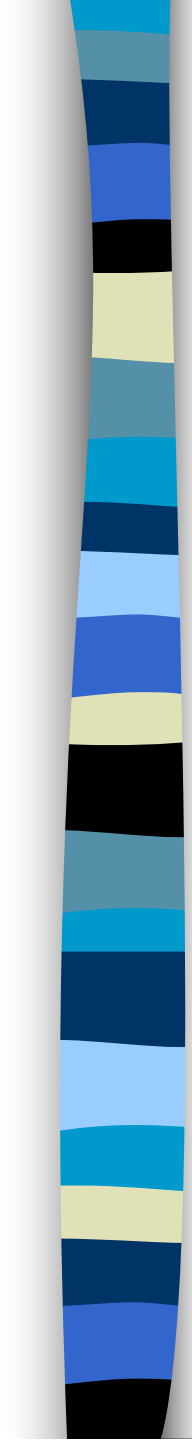
Thyroid Supplements, continued

Desiccated Extract: These forms of thyroid hormone have the same action as synthetic supplements: They mimic the action of naturally occurring thyroid hormones to boost protein synthesis in cells, promote the use of glycogen stores, increase heart rate and cardiac output, and increase urine output. The difference is that the potency of these dosages is more difficult to predict, so users may experience significant fluctuation of symptoms.

Examples: Armour Thyroid, Nature-Throid, WesThroid

Effects / Side Effects: Tremor, increased heart rate, anxiety, insomnia. Note: These are associated with having too much thyroid hormone and indicate that the dosage can be reduced.

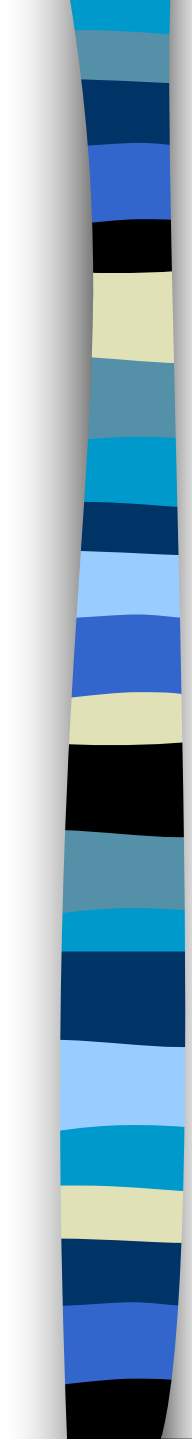
Modifications: As with synthetic hormones, a new user may experience increased anxiety, insomnia, or agitation, all of which indicate massage. If symptoms persist, the person needs to consult with the physician. Otherwise, massage is perfectly appropriate for clients who supplement thyroid hormones.



10 of the most prescribed medications in 2021

(not in any order)

1. **Atorvastatin (Lipitor):** Statin used to treat high cholesterol.
2. **Lisinopril (Prinivil, Zestril):** ACE inhibitor used to treat high blood pressure, and in combination with others med to treat heart failure.
3. **Albuterol:** Short-acting Beta Agonists used to treat and prevent bronchospasm. Works by relaxing muscles in the lungs.
4. **Levothyroxine (Synthroid, Levoxyl, Unithroid):** Thyroxines. Thyroid supplement drugs. Can improve symptoms of thyroid deficiency.
5. **Metformin (Glucophage):** Biguanides used in combination with diet and exercise to help control blood sugar levels in type 2 diabetes.



10 of the most prescribed medications in 2021

(not in any order)

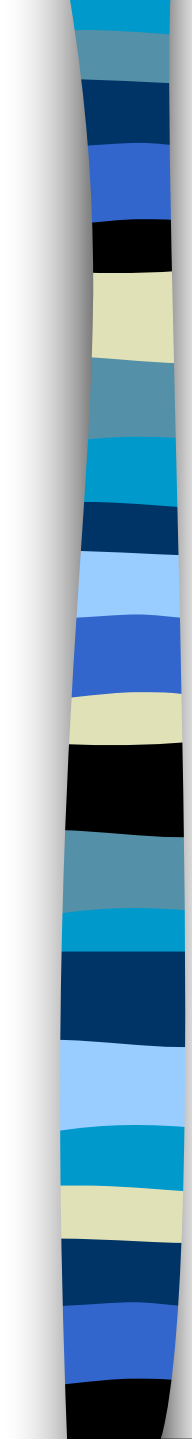
6. Gabapentin (Neurontin): Anti-epileptics. Used to treat seizures, epilepsy, and nerve pain.

7. Amlodipine (Norvasc, Amvaz): Calcium channel blocker used to treat high blood pressure and chest pain (angina).

8. Omeprazole (Prilosec): Proton pump inhibitor used to treat certain conditions where there is too much acid in the stomach, like ulcers, heartburn, and gastroesophageal reflux disease (GERD).

9. Losartan (Cozaar): ARB used to treat high blood pressure, reduce the risk of stroke, and slow the progression of kidney disease in patients with diabetes.

10. Hydrocodone/Acetaminophen (Lorcet, Vicodin, Norco, Lortab): Opiate combination used to treat moderate to severe pain.



23a Pathology: Medications

Knowing the effects of medications allows us
to properly modify massage treatments.