

Making Sense of Nutrition and Rheumatic Diseases: Does What I Eat Make a Difference?



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Presentation Outline

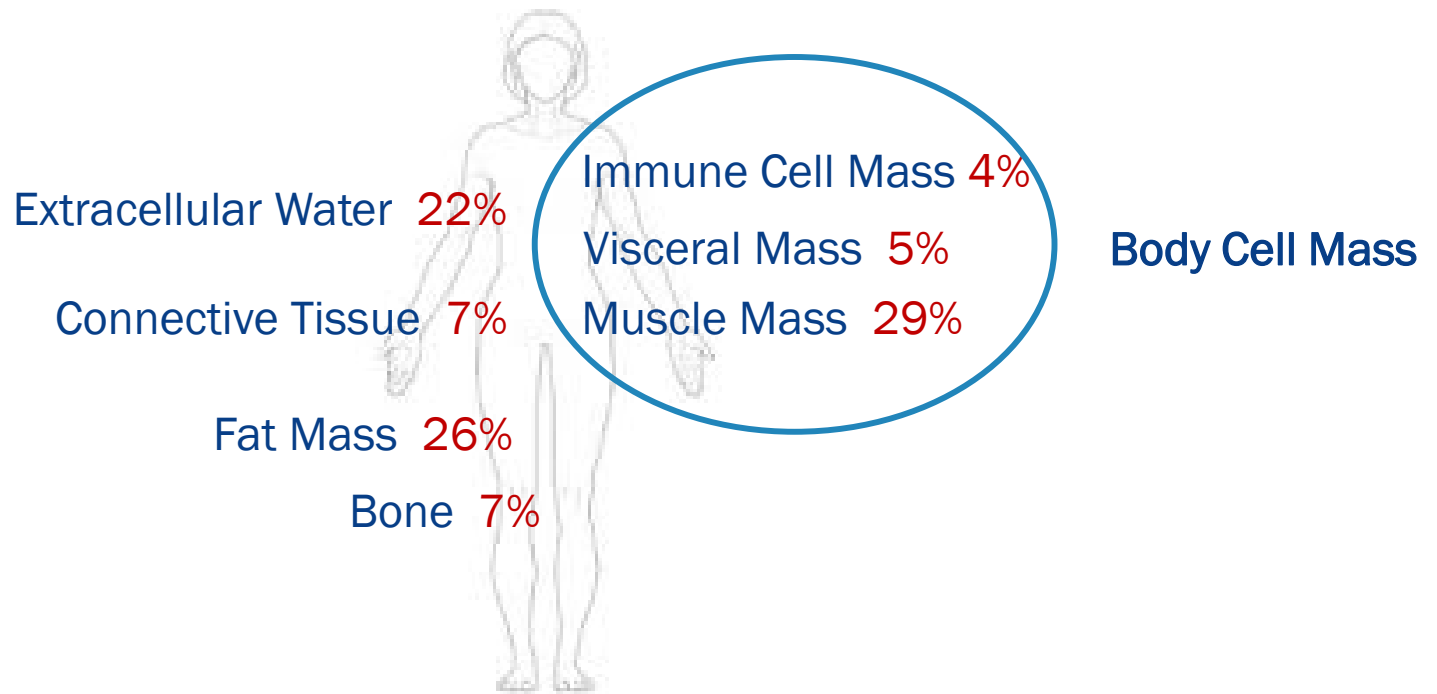
- ∞ Rheumatoid arthritis
 - Metabolic changes
- ∞ Systemic lupus erythematosus
 - Unique features
- ∞ Nutrition recommendations
- ∞ Physical activity recommendations
- ∞ Complementary and alternative therapies

Rheumatoid Arthritis



Metabolic Changes

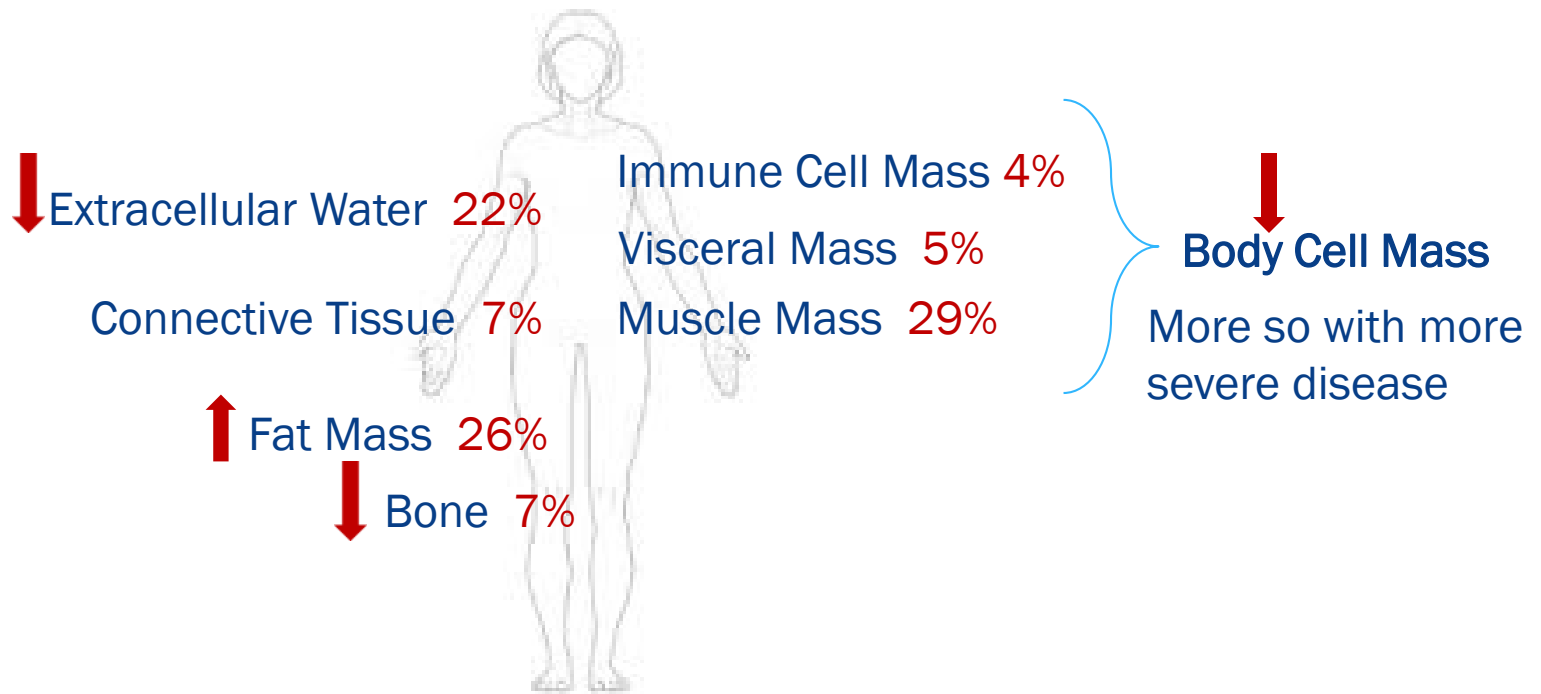
Body Composition



Body Composition Matters...

- ∞ Even 5% loss of lean mass can:
 - Reduce muscle strength, independence
 - Alter energy metabolism (burn less calories)
 - Reduce immunity (more susceptible to infections)
- ∞ Good news is that these changes are reversible with intervention

Body Composition in RA



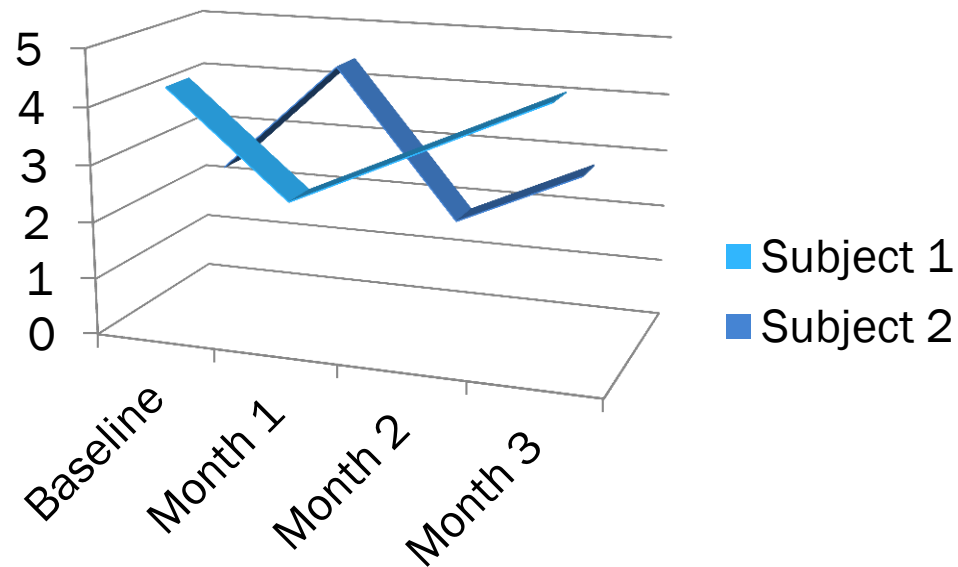
Net effect is tendency toward cachectic obesity

Cachexia (Greek): “Bad Condition”

Caution

- ∞ Natural history of RA: flares alternating with periods of remission
- ∞ This pattern makes it very difficult to attribute observed changes in disease activity to intervention under study (diet, physical activity)

Example: Disease activity



Lupus



Unique Features

Organs Affected

∞ Inflammation of multiple organs in addition to joints:

- Kidneys

- May necessitate more restricted diet (limiting protein)

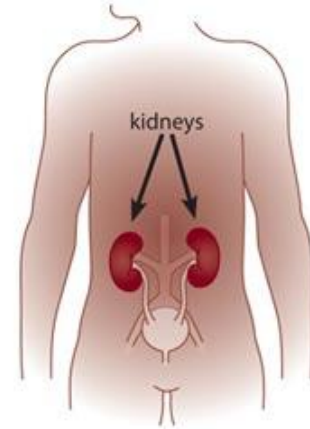
- Skin

- Need to avoid sunlight may affect nutrient status

- Vitamin D

- Blood

- Anemia
 - Iron intake
- Clotting
 - Vitamin K



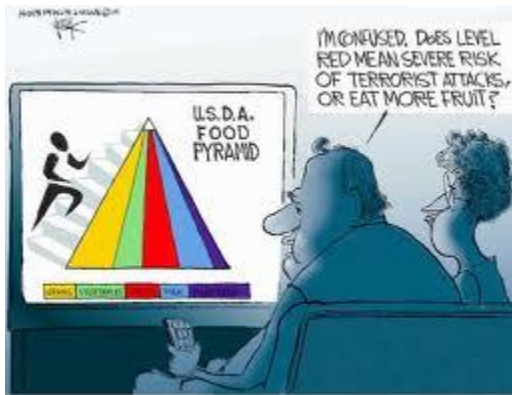
Butterfly rash



What Should I Eat?



It's confusing for everyone!



General Diet Recommendations

∞ **Calories** to maintain desirable body weight

∞ **Protein**

- ~ 1.5 g /kg body weight/day
- Example:
 - 150 lbs = 68 kg = 102 g protein
 - Daily foods:
 - 9 oz meat/fish/poultry/cheese (1 oz = 7 g)
 - 16 oz milk/yogurt (8 oz = 13 g)
 - 8 oz fortified cereals/breads/beans (~ 15 g)

∞ **Fat**

- 25% energy
- < 8% saturated fat
- Increase omega-3 fatty acids...

∞ **Carbohydrates**

- Avoid simple sugars

Translation into Foods

☞ Breakfast

- 1 cup fortified cereal
- 1 cup skim or low-fat milk
- 1 cup fortified orange juice

☞ Lunch

- Sandwich with 3 oz lean meat
- 2 slices whole grain bread
- Vegetables/Fruit
- 1 cup skim or low-fat milk

☞ Dinner

- 6 oz salmon
- 1 cup rice
- Vegetables/fruit
- Water or other beverage

☞ Snacks

- 1 slice whole grain bread
- 1 oz low-fat cheese

Fats and Oils: Omega-3

☞ Fish oil (omega-3 fatty acids)

- Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)
- Early data from Greenland Eskimos
- Anti-inflammatory effects
- Best food sources:
 - Tuna
 - Sardines
 - Salmon
 - Mackerel
 - Trout



n-3 Supplement Studies

- ∞ Relatively high doses, ≥ 3 g/day (equivalent of 6 oz salmon), for ≥ 12 weeks; some studies as high as 10 g/day (20 oz salmon!)
- ∞ Reduction in tender, swollen joints and morning stiffness
- ∞ May reduce need for NSAIDs
- ∞ Greater improvement when fish consumption increased; n-6 consumption decreased simultaneously

Fats and Oils: Omega-6

- ☞ Generally considered “pro-inflammatory”
- ☞ Exception: some plant seed oils which are anti-inflammatory
- ☞ Example: γ -linolenic acid (GLA)
 - Evening primrose oil
 - Borage seed oil
 - In small RCT – reduced disease activity after 6 months, 1.4 g/day (many capsules: typical ~45 mg GLA/capsule)
 - Smaller doses = no benefit



Evening Primrose



Borage Flower

What About Exercise?



Type? Amount?



Contradictory Messages!



Benefits of Strength Training

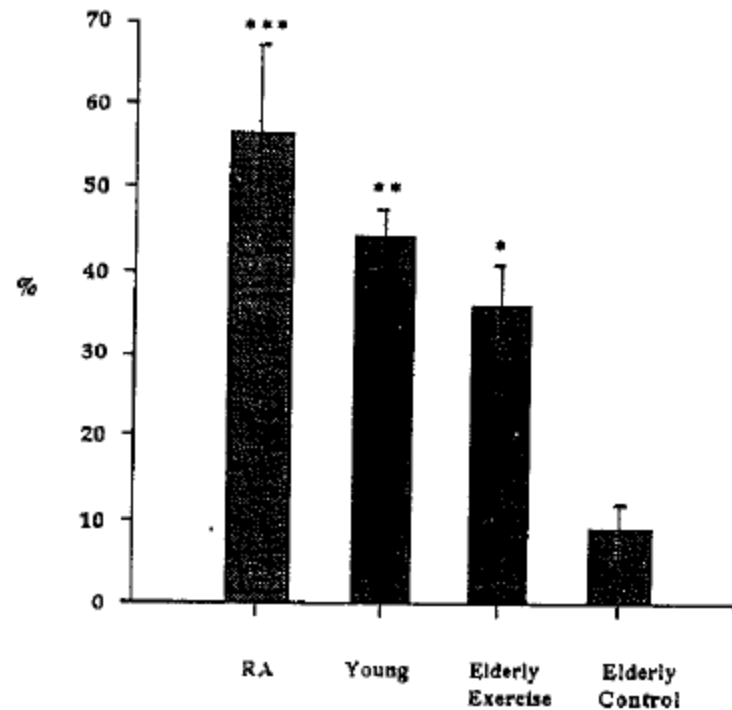
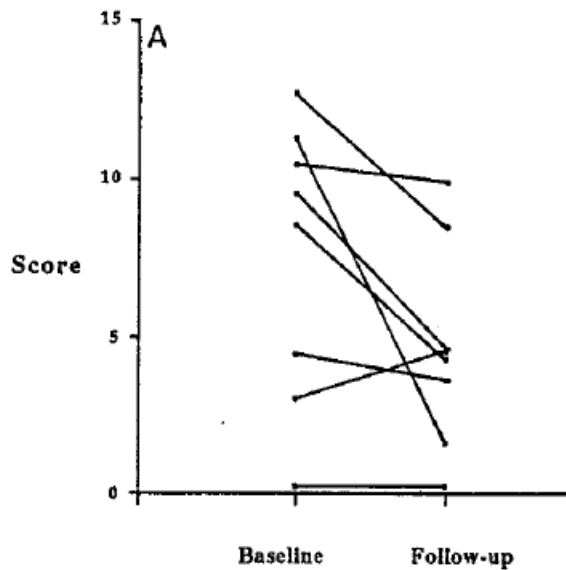


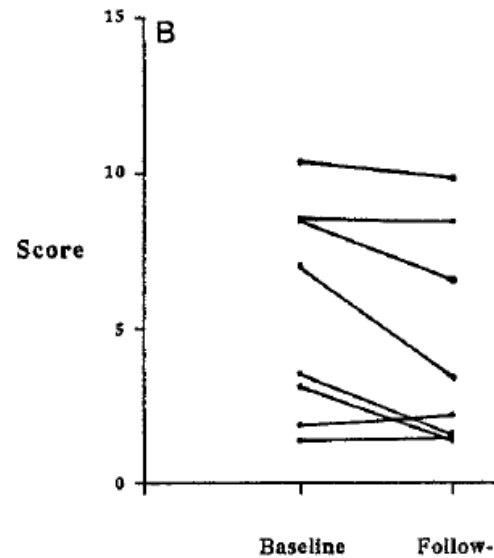
Figure 1. Comparison between subject groups in mean increase in strength at followup versus baseline. There were significant increases in strength in the groups who underwent resistance training, compared with elderly control subjects. * = $P < 0.05$; ** = $P < 0.01$; *** = $P < 0.0005$. Values are the mean \pm SEM. RA = rheumatoid arthritis.

Improved Functional Status

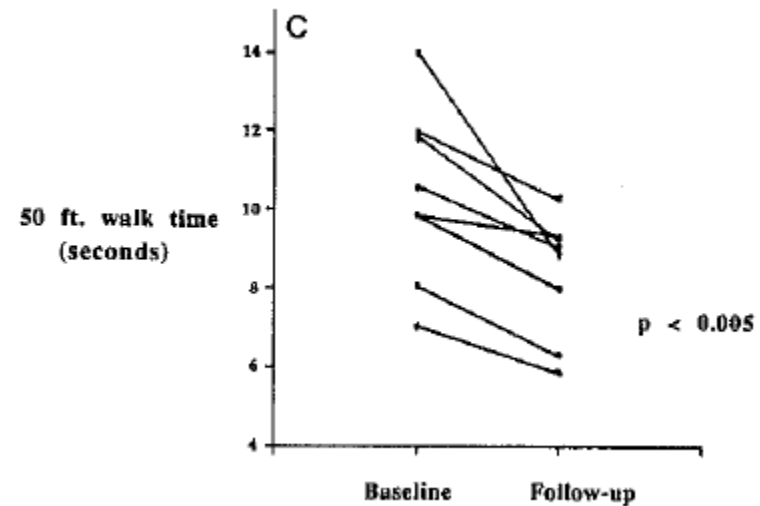
Fatigue



Pain



Walking Time



Recommendations

- ∞ Strength training
 - Builds muscle fibers
 - Requires less oxygen than endurance training – easier “first step”
 - High-resistance, low-repetition, work up to goal
 - Example:
 - 3 sets of 8, rest between sets, 80% maximum effort
 - Include major muscle groups (leg, arm, abdominal, back)
- ∞ Active joint inflammation is a barrier
- ∞ Discuss with health care provider

Alternative Therapy



Safe? Effective?

Sound Guidance from NCCAM

- ∞ In general, there is not enough scientific evidence to firmly establish that any CAM therapies are safe and effective for RA. Some mind-body therapies and dietary supplements may be beneficial additions to RA treatment regimens, but more high-quality research is needed before drawing conclusions.
- ∞ It is important not to replace conventional medical therapy for RA with an unproven CAM therapy.
- ∞ Tell your health care providers about any complementary and alternative practices you use. Give them a full picture of what you do to manage your health. This will help ensure coordinated and safe care.

Dietary Supplement and Health Act, 1994

∞ Includes

- Vitamins, minerals, herbs, botanicals, amino acids, etc.
- Tablets, capsules, softgels, gelcaps, liquids, powders, bars

∞ Products do not have to be approved by FDA

∞ No proof of efficacy or safety

∞ No studies of potential mechanism of action

∞ No regulation over

- Accuracy of dosage
- Actual ingredients
- Potential contaminants

Who Is Responsible?

∞ **Manufacturer** responsible for ensuring safety, truth on labels

∞ Allowable on labels:

- Health claims
 - Link supplement to disease
- Structure/function
 - Link supplement to maintenance of normal healthy structures or functions of the body
 - Must include disclaimer
- Nutrient content
 - “high”, “lite”, “reduced”, etc.



Herbal Supplement Claims

☞ Willow bark

- Pain relief (salicin) – limited evidence, short-term



☞ Devil's claw

- Anti-inflammatory herb



☞ Ginger

- Reduced joint pain/swelling



☞ Thunder God vine

- Anti-inflammatory, immunosuppressive
- Considerable side-effects (GI)



☞ Feverfew

- Anti-inflammatory



☞ Turmeric

- Antioxidant, anti-inflammatory



Bottom Line

- ∞ Use caution with dietary supplements
- ∞ Some may provide benefit but most are either ineffective or potentially harmful
- ∞ Talk to your health care provider



Mind-Body Techniques

☞ Relaxation, imagery, biofeedback

- May help alleviate pain, improve physical function/coping, reduce stress
- More effective for shorter duration RA

☞ Mindfulness meditation

- Beneficial for improving psychological aspects of illness (coping, depression) after 6 months
- No effect on symptoms

☞ Tai chi

- Improved mood, quality of life, and overall physical function
- No effect on joint symptoms (pain, swelling, tenderness)
- Safe; more studies needed

☞ Acupuncture

- Insufficient evidence

Alternative Diet Techniques

∞ Vegan or vegetarian diet

- Vegan – no animal products (meat, fish, poultry, eggs, milk, etc.)

∞ Fasting

∞ Elimination diet

- Cut out foods that might be contributing to symptoms

∞ Elemental diet

- Liquid diet containing nutrients already broken down
 - Amino acids vs. protein
- Easier to digest

Conclusions:

- Effects on disease symptoms uncertain (small studies, design flaws)
- Often difficult to stay on diets (too restrictive)
- Unintentional weight loss

Summary



Does What I Eat Make a Difference?...



...YES!*

*Key:

- Variety, moderation
- Avoid fad diets
- Focus on foods vs. supplements; fresh vs. processed when possible
- Cannot replace medical therapy but can help maintain health and optimal functioning

*What you do makes a difference too

- Stay active

Take Home Messages

1. Don't eat anything your great-great-grandmother wouldn't recognize as food.
2. Especially avoid food products containing ingredients that are a) unfamiliar, b) unpronounceable c) more than five in number.
3. Get out of the supermarket.
4. Cook. And if you can, plant a garden.



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Thank you!

Questions?



Common Medications

- ∞ Non-steroidal anti-inflammatory drugs (NSAIDs)
 - Control pain, inflammation
 - Examples: naproxen, ibuprofen
 - **GI disturbance**
- ∞ Corticosteroids
 - Reduce inflammation, suppress immune system
 - Example: prednisone
 - **Weight gain, osteoporosis**
- ∞ Disease-modifying anti-rheumatic drugs (DMARDs)
 - Slow or prevent joint damage
 - Examples: methotrexate, hydroxychloroquine
 - **Folate**
 - Cytokine antagonists
 - Examples: anti-TNF- α -based therapies (adalimumab, etanercept, infliximab)