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## Current priorities with OA:

1. Hip pain has increased last 2 days. Possible causes:
  - a. No salmon eating last week plus?
  - b. Lying down for very extended periods while working may have stiffened up joint?
  - c. Lots of daily stretching and exercise, might be overdoing it. Have not zwifted yesterday though.
2. Try Buchinger fast for 21 days?
3. Research alternative desk setups including lying down in a massage position
4. Find ASU's without the rest in the pill.
- 5.
6. Update all supplements including green tea and cacao powder and buy online
  - a. Build sheet tracking OA related stuff... Hip pain, inflammatory foods, salt, sleep, golf, walking, cardio, circuit etc
  - b. Hip OA supplements -  
<https://www.consumerlab.com/m/answers/which-supplements-help-for-osteoarthritis-of-the-hip/osteoarthritis-hip-supplements/>
  - c. Supplements for brain -  
[https://www.consumerlab.com/m/answers/do-any-supplements-help-with-brain-function/supplements\\_for\\_memory/](https://www.consumerlab.com/m/answers/do-any-supplements-help-with-brain-function/supplements_for_memory/)
  - d. Hu chocolate bars?
  - e. TJ's bone broth or other?  
[https://www.amazon.com/stores/node/16069688011?\\_encoding=UTF8&field-lbr\\_brands\\_browse-bin=Kettle%20%26%20Fire&ref\\_=bl\\_dp\\_s\\_web\\_16069688011](https://www.amazon.com/stores/node/16069688011?_encoding=UTF8&field-lbr_brands_browse-bin=Kettle%20%26%20Fire&ref_=bl_dp_s_web_16069688011)
7. Make sheet for tracking supplements, diet calories, exercise types and hip pain
- 8.
9. Tomorrow for traction hang a 20 lb weight from jumprope on one side and tie to my ankle on the other. Get laurel or Sierra to help.
- 10.

11. Research Birmingham hip resurfacing
  - a. <https://online.boneandjoint.org.uk/doi/full/10.1302/0301-620X.96B10.33695>
12. Read up on how to test for food sensitivities / test exclusion elimination diet
13. Get access to arxiv / sci hub <http://gen.lib.rus.ec/scimag/?q=osteoarthritis>
14. DONE - Mountain Decide whether or not to get an outdoor bike / recumbent / mountain
15. Done - What places have lowest rates of steoarthritis?
  - a. <https://www.apta.org/PTinMotion/News/2016/5/19/CountyArthritisPrevalence/>
16. Done - Best low cal high fiber blender recipe for autophagy?
17. Done - What does Ray kurzweil do for diet & supplements?  
<http://longevityfacts.com/futurist-ray-kurzweil-takes-100-pills-daily-to-live-forever/>
18. Done - Possible physical tests for myself? Blood sugar, blood pressure, electrolytes, ketones? Or go to qwest labs? What to track while fasting?
19. Done - Should I eat salmon while fasting?
20. Research where I can do fecal transplant for OA (check gov clinical trials)
  - a. Email from openbiome saying its illegal currently "Re: Form Submission - New Form - Osteoarthritis"
21. Research & plan mental game
22. DONE - Buy cane?  
<https://www.amazon.com/NOVA-Medical-Products-Offset-Silver/dp/B00CPPOGLM>
23. DONE - Buy more turmeric seasoning
24. Done - Coq10?  
<https://www.consumerlab.com/m/reviews/CoQ10-Ubiquinol-Supplements-Review/CoQ10/>
25. Done - Create new hip specific circuit training
26. DONE - Buy new food scale
27. DONE - Does consumerlabs test baby formula
28. DONE - Either have Laurel get more matcha tea powder at trader Joe's or buy some online
29. DONE Cacao powder  
[https://www.consumerlab.com/m/reviews/Cocoa\\_Powders\\_and\\_Chocolates\\_Sources\\_of\\_Flavanols/cocoa-flavanols/](https://www.consumerlab.com/m/reviews/Cocoa_Powders_and_Chocolates_Sources_of_Flavanols/cocoa-flavanols/)
  - a. Research how much cacao powder is the correct amount
30. DONE - nightshades are okay according to studies, people anecdotally say otherwise. Research joints and nightshade plants  
<https://www.healthline.com/health/nightshade-vegetables-and-inflammation#antiinflammatory-options>
31. DONE - Research nutritional yeast <https://selfhacked.com/blog/nutritional-yeast/> ok once in a while... and potassium -  
<https://ods.od.nih.gov/factsheets/Potassium-HealthProfessional/> and necessary and hard-ish to overdose
32. DONE - Diet research & plan
33. DONE - Exercise research
34. DONE - visit 2 doctors and write down their opinions

35. DONE - plan weight loss
36. DONE - Supplement research then purchase
37. DONE - Buy recumbent indoor exercise bike with fun games I want to do daily
38. Call doctor about brace & PT
39. DONE - Go see a Rheumatologist
40. DONE - Find and visit registered dietitian specializing in osteoarthritis / arthritis
- 41.

## Diet & Nutrition

Joel's ideal goal weight is 175:

- Your weight is more likely than any other specific dietary factors to affect your risk of developing osteoarthritis.
  - <https://www.versusarthritis.org/about-arthritis/conditions/osteoarthritis/>
- <https://www.yellowjersey.co.uk/the-draft/calculate-ideal-race-weight/> - 175
- <https://www.yellowjersey.co.uk/the-draft/calculate-ideal-race-weight/> Pro cyclist my age and slightly taller... Weighs 187
- [https://pcmdaily.com/forum/viewthread.php?thread\\_id=34619&pid=889900](https://pcmdaily.com/forum/viewthread.php?thread_id=34619&pid=889900) Top cyclists my height seem to be around 171-176
- [https://en.wikipedia.org/wiki/Jack\\_Bachelor](https://en.wikipedia.org/wiki/Jack_Bachelor) Jack Bachelor - 6'7 elite marathoner weighed 170
- <https://link.springer.com/article/10.1007/s00402-017-2825-5> Maximum lifetime body mass index is the appropriate predictor of knee and hip osteoarthritis | SpringerLink
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC83842/> Body mass indices in patients with disabling hip osteoarthritis
- <https://www.healthline.com/nutrition/maintain-weight-loss>
  - 17 tips for maintaining weight loss
    - Exercise 1 hour plus a day
    - Eating breakfast may help
    - Weigh myself daily
    - Track all calories
    - Be ready for setbacks... Perhaps if I set my goal at 175, if I go above 180 then fast back to 170?
    - Stick to my anti-inflammatory diet with 95% plant foods, tons of fiber
    - Control stress
    - Be consistent - no cheat days, lifetime commitment.
- Hip may hurt less and I may lose more weight when not fasting since I control eating and can workout much better. Maybe reserve prolonged fasts for periods of no workouts? Ideal to do 2 5 day fasts a month

- **Strong recommendations were made for exercise, weight loss in patients with knee and/or hip OA who are overweight or obese, self-efficacy and self-management programs, tai chi, cane use, hand orthoses for first carpometacarpal (CMC) joint OA, tibiofemoral bracing for tibiofemoral knee OA, topical nonsteroidal antiinflammatory drugs (NSAIDs) for knee OA, oral NSAIDs, and intraarticular glucocorticoid injections for knee OA.**  
<https://onlinelibrary.wiley.com/doi/full/10.1002/art.41142>
- **A Prebiotic May Alter the Obese Microbiome and Protect Against Osteoarthritis**  
<https://www.urmc.rochester.edu/news/story/5326/the-bugs-in-your-gut-could-make-you-weak-in-the-knees.aspx>

C reactive protein <1

- <https://www.mayoclinic.org/tests-procedures/c-reactive-protein-test/about/pac-20385228>
- I am at low risk for heart disease

Ferritin, serum 282

- <https://www.mayoclinic.org/tests-procedures/ferritin-test/about/pac-20384928>
- Normal range for iron (24-336)

Vitamin D, 25-hydroxy: 41.9

- <https://www.healthline.com/health/25-hydroxy-vitamin-d-test#procedure>
- [https://www.consumerlab.com/m/reviews/vitamin\\_D\\_supplements\\_review/Vitamin\\_D/](https://www.consumerlab.com/m/reviews/vitamin_D_supplements_review/Vitamin_D/)
- Normal levels are 50-125, I am deficient

Lipid panel:

<https://www.webmd.com/cholesterol-management/understanding-your-cholesterol-report#1>

- VLDL cholesterol 25
  - Worst kind of cholesterol, normal range is 5-40
- Triglycerides 124
  - Normal is less than 150, I am good here. It's a blood fat linked to heart disease.
- cholesterol, total - 167
  - Ideal levels are less than 200, I could still stand to lose a bit here.
- HDL cholesterol 51
  - Healthy cholesterol. Levels 60 or above are good, so I could have more.
- LDL cholesterol - 91
  - Optimal levels are less than 100, so good here. This is bad cholesterol.

CBC w Diff w PLT I/Q <https://www.cancer.org/content/dam/CRC/PDF/Public/7174.pdf>

- Monocytes 11
- EOS absolute 0.1
- MCV 98
- IMmature granulocytes 0
- EOs 2
- Monocytes (absolute) 0.5

- Neutrophils (absolute) 2.3
- MCHC 33.1
- Basos 1
- WBC 5
- Hemoglobin 14.1
- Immature grans (abs) 0
- Lymphs (absolute) 2
- Platelets 231
- RDW 13.9
- MCH 32.3
- Lymphs 40
- Baso (absolute 0.1)
- Neutrophils 46
- Hematocrit 42.6
- RBC 4.36

1. Trader Joe's / other grocery shopping list of things not to run out of:
  - a. Avocados (used in salad and as a snack)
  - b. Bananas (used in blender drink)
  - c. Blueberries (blender drink)
  - d. Hardboiled eggs (eat with salt & pepper not sugar sauce like sriracha)
  - e. Almonds raw
  - f. Walnuts raw
  - g. Chia seeds
  - h. Bell peppers (salad, blender drinks)
  - i. Celery (large quantities for blender drink)
  - j. Cucumber (snacks)
  - k. Onions (soup)
  - l. Lentils
  - m. <http://www.whfoods.com/foodstoc.php> - see for fruits & veggies & beans, not other categories
2. The perfect meal plan (all organic, raw):
  - a. **My request for Laurel and Sierra:**
    - i. Low calorie, high fiber snacks to eat most of the day
      1. Oatmeal
      2. Celery / Broccoli / Raspberry blender drinks with almond milk
      3. Kimchi / sauerkraut

- ii. Please make my green tea each morning
- iii. Drink chamomile tea after 1 pm each day... extremely high in flavones.
- iv. Fast day idea:
  - 1. Chia Pudding (good for fast days, 300 calories total and tons of fiber and omega 3's and healthy stuff):
    - a. Recipe 1900 calories for 6 servings, 300 calories per serve:
      - i. Cacao 180 calories
      - ii. Chia seeds 1080 calories
      - iii. Coconut milk 660 (1 container full of full fat coconut milk + 2 containers water, might be able to try 3 next time or it might get runny)
      - iv. Cayenne pepper - 0
    - 2. 1 container salmon or another fish - 300 calories
    - 3. MAYBE... bone broth?
- v. Please make my blender drink each morning. Goal is to help me feel more full. Wherever it says OR on an item, please rotate between those selections.
  - 1. Recipe: - 1,030 calories
    - a. 1 container salad or Spinach or Kale or Broccoli (cycle between) 30 calories
    - b. Chia seeds (1.5 oz or 3 tbspn) or flax seeds (1.5 oz or 3 tbspn) - 200 calories
    - c. 1.5 oz / 3 tbspn of Cacao - 100 calories
    - d. ½ container blueberries OR pears OR apples OR strawberries (.5 lb) - 130 calories
    - e. 1 handful walnuts or almonds (⅓ cup) - 200 calories
    - f. 1 handful pumpkin seeds 100 calories
    - g. 1 banana 100 calories
    - h. Vegetable protein powder - 100 ca
    - i. 2 scoops Collagen - 45 calories
    - j. Almond milk - 1 cup 30 calories
    - k. Laurel - Fill higher with water so more voluminous. Sierra - your volume is correct.
  - 2. Low calorie, high fiber recipe:
    - a. Raspberries (64 calories, 8 g fiber in a cup)... 1 cup
    - b. Swiss chard / Collard greens / Raspberries / Turnip greens / Cabbage / Celery / Broccoli (53 calories, 5.5 g fiber cup).. 2 cups
    - c. Banana 100 calories
    - d. Almond milk - 1 cup 30 calories
    - e.
- vi. Beef / chicken broth: 550 calories

1. 1 box container of bone broth (2 cups) 90 calories
2. 1 cup mixed beans (kidney, chickpea, navy or yellow / red, etc) Or soybeans / legumes - 270 calories
3. Fiber - Add 2 cups of one the following
  - a. Collard greens
  - b. Swiss chard
  - c. Okra
  - d. Radishes
  - e. Asparagus
  - f. Broccoli
4. 1 sweet potato - 110 calories
5. 1 onion 60 calories
6. lots of mushrooms,
7. 1-2 cloves Garlic (3 tablespoons minced garlic)
8. Pepper - 2 tablespoons
9. Cayenne pepper - 2 tablespoons
10. 1 small piece galang
- vii. Please make my salad each day for lunch - 970 calories
  1. 1 container salad 30 calories
  2. Mushrooms - 1 container - 40 calories
  3. 20 Olives (without nuts inside)- 100 calories
  4. 1 small (1/4 cup) pine nuts 200 calories
  5. 1 handful walnuts (1/3 cup) - 200 calories
  6. 1 tablespoon olive oil - 120
  7. 1 avocado 300 calories
  8. Good amount of balsamic
  9. LOTS of ground pepper
  10. Some salt
- viii. Please always keep a jar of ginger for me to snack on
- ix. 2x per week, please make me fish (either salmon or herring (pickled from Costco)). Ideally make salmon with heavy amounts of thyme or rosemary with lemon juice.
- x.
- xi. Please keep a crock pot (or store in fridge) for snacking (lots of tasty spices and veggies and such added) either
  1. Lentils
  2. Vegetarian or heavy veggie turkey chili
- xii. Move my stuff to a new cabinet where I won't be tempted by other unhealthy foods. Perhaps even drape a thin cloth over other sections of fridge so I only see and eat from my section? We can leave my unhealthy food (beef jerky, sauces) in the existing cabinet
- b. Dinner:
  - i. Protein

1. Fatty fish (salmon, sardines, herring, mackerel, anchovies, tuna)
    - a. <https://www.consumerreports.org/cro/magazine/2014/10/can-eating-the-wrong-fish-put-you-at-higher-risk-for-mercury-exposure/index.htm>
      - i. Best low mercury fishes -
        1. Deming's red sockeye salmon is best rated by consumer labs  
<https://www.consumerlab.com/reviews/canned-tuna-and-salmon-review/canned-tuna-and-salmon/>
      - ii. Don't buy smoked salmon - it's carcinogenic  
<https://www.ncbi.nlm.nih.gov/pubmed/7447916>
    2. Fatty chicken or turkey is okay
    3. Beans / lentils (turkey & heavy veggie chili for example)
  - ii. Vegetable (spinach, kale, broccoli), sweet potatoes, etc
  - iii. Salsa containing lots of bell peppers, avocado, olives, mushrooms, moderate tomatoes.
- c. Snack
- i. Green tea
  - ii. Pineapple
  - iii. Green beans / carrots / bell peppers + hummus (no sugar added)
  - iv. Red bell peppers + guacamole
  - v. Olives (on their own or stuffed with garlic or peppers... no cheese)
  - vi. Tart cherries
  - vii. Apples (especially prepackaged sliced apples) and peanut butter
  - viii. Grapes
  - ix. Kombucha
  - x. Edamame
  - xi. Cottage cheese + ground flax seeds + tablespoon of cinnamon to make pudding
  - xii. Kimchi (no sugars)
  - xiii. Eggs
  - xiv. Turkey or fish jerky (less often)
  - xv. Steel cut oatmeal with some berries and almond milk
  - xvi. Minimum 70% dark chocolate (less often)
  - xvii. Bone broths & organ meats (liver, bellies) for collagen
  - xviii. Prebiotic foods - chicory, garlic, leeks, onion, asparagus, and Jerusalem artichokes (sunchokes). They're also found in lesser amounts in bananas, whole wheat, yams, and sweet potatoes.
  - xix. Beans
  - xx. Soy
  - xxi. Garlic & onions



- d. NEVER EAT LIST - Sugar, greasy, highly processed foods. Candy, sweets, cakes, cookies, soda, processed red meat (hot dogs), butter, whole milk, cheese, fried foods, creamers, margarine, anything with partially hydrogenated oil, wheat rye, barley.
- e. Interesting note - a [ketogenic](#) diet can reduce inflammation, but there is [negative](#) evidence against it too. The mediterranean diet seems to have the best support in medical studies as the most healthy option.

General diet studies:

- <https://www.bluezones.com/recipes/food-guidelines/>
  - Blue zone diet research generally matches DII below. No meat, minimal dairy, no added sugars, limited fish, very limited eggs, daily beans, 95-100% plant based, specific nuts (brazil, almonds, cashews, walnuts). Limited bread, and then only sourdough or 100% whole wheat. Mostly drink water, tea, coffee are okay.
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3925198/>
  - The DII appears to be the single most authoritative source on anti-inflammatory diet. It sums thousands of studies on humans, animals, and cells to come up with a scoring system.
  - Highest anti inflammatory foods (overall anti-inflammatory effect)
    - Turmeric -.785
      - <https://www.consumerlab.com/reviews/turmeric-curcumin-supplements-spice-review/turmeric/#cautions>
      - Some risks to liver and kidneys
      - Consumer lab says modest benefits for osteoarthritis
      - Spice version -McCormicks
      - Supplement version - <https://www.vitacost.com/vitacost-root2-turmeric-extract-curcumin-c3-complex-with-bioperine-1160-mg-per-serving-60-capsules>
        - Ordered 12/23/2019
        - Ordered 2/26/2020
    - Fiber - .663 (try to get 50 grams a day at least)
      - Probiotics
        - <https://www.consumerlab.com/m/reviews/Probiotic-Supplements-and-Kombucha-Drinks/probiotics/#results>
        - Best cost / for what you get <https://www.amazon.com/Vitamin-World-Probiotic-Rapid-Release-Supplement/dp/B077LL7WXL>
          - Ordered 2/26/2020
      - Fiber - highest fiber foods for calories in order <https://www.myfooddata.com/articles/high-fiber-low-calorie-foods.php>

- <https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/high-fiber-foods/art-20050948>
  - Peas
  - Endive
  - Beet greens
  - Okra
  - Swiss chard
  - Collard greens
  - Raspberries
  - Turnip greens
  - Cabbage
  - Celery
  - Broccoli
- Enzymes
  - Best value & recommended - <https://www.amazon.com/Healthy-Origins-Digestive-Vegetarian-Capsules/dp/B00KC4NEW0>
  - [https://www.consumerlab.com/m/reviews/digestive\\_enzyme\\_supplements/digestive-enzymes/#toppicks&ui-state=dialog](https://www.consumerlab.com/m/reviews/digestive_enzyme_supplements/digestive-enzymes/#toppicks&ui-state=dialog)
    - Ordered 12/23/2019
    - Ordered 2/26/2020
- Flavones -.616
  - <https://academic.oup.com/advances/article/8/3/423/4558050>
  - Chamomile
    - [https://www.amazon.com/Frontier-Organic-Chamomile-Flowers-German/dp/B001VNGN9C/ref=sxin\\_4\\_ac\\_d\\_rm?ac\\_md=0-0-Y2hbbW9taWxl-ac\\_d\\_rm&keywords=chamomile&pd\\_rd\\_j=B001VNGN9C&pd\\_rd\\_r=30513e1a-a86d-4dd9-b073-3d22a90bc3f4&pd\\_rd\\_w=v5cQ3&pd\\_rd\\_wg=s0gdA&pf\\_rd\\_p=6d29ef56-fc35-411a-8a8e-7114f01518f7&pf\\_rd\\_r=H6GB6BAK14JNAET6AM8D&qid=1577137043&th=1](https://www.amazon.com/Frontier-Organic-Chamomile-Flowers-German/dp/B001VNGN9C/ref=sxin_4_ac_d_rm?ac_md=0-0-Y2hbbW9taWxl-ac_d_rm&keywords=chamomile&pd_rd_j=B001VNGN9C&pd_rd_r=30513e1a-a86d-4dd9-b073-3d22a90bc3f4&pd_rd_w=v5cQ3&pd_rd_wg=s0gdA&pf_rd_p=6d29ef56-fc35-411a-8a8e-7114f01518f7&pf_rd_r=H6GB6BAK14JNAET6AM8D&qid=1577137043&th=1)
    - Ordered 12/23/2019
  - Parsley
  - Celery stalks (especially hearts). Chinese celery best.
- Isoflavones -.593
  - Similar to estrogen... <https://www.consumerlab.com/tnp.asp?chunkiid=21778>
  - Soy products contain this.
- B Carotene - .584

- Do not supplement as it increases risk of death.  
<https://www.consumerlab.com/answers/is-beta-carotene-dangerous/beta-carotene-danger/>
- [https://www.consumerlab.com/reviews/Vitamin\\_A\\_Retinol\\_Beta-Carotene\\_Cod\\_Liver\\_Oil/Vitamin\\_A/](https://www.consumerlab.com/reviews/Vitamin_A_Retinol_Beta-Carotene_Cod_Liver_Oil/Vitamin_A/)
- Green / black tea -.536
  - [https://www.consumerlab.com/reviews/Green\\_Tea\\_Review\\_Matcha\\_Supplements\\_and\\_Bottled/Green\\_Tea/](https://www.consumerlab.com/reviews/Green_Tea_Review_Matcha_Supplements_and_Bottled/Green_Tea/)
  - More than 5 cups a day is best of green tea, reduces cholesterol and really helps heart.
  - Drink it rather than supplement it. Don't drink it hot.
  - <https://www.walmart.com/ip/MRM-Raw-Matcha-Green-Tea-Powder-6-Oz/101683203>
    - Ordered 12/23/2019
    - Ordered 2/26/2020
- Mg (magnesium?) - .484
  - <https://www.consumerlab.com/reviews/magnesium-supplement-review/magnesium/>
  - Supplement no more than 300 mg a day
  - Best price & recommended -  
<https://www.vitacost.com/vitacost-magnesium-citrate-400-mg-magnesium-per-serving-240-tablets>
- Flavonols -.467
  - Cacao -  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4924162/>
    - Evidence for help in inflammation is low.
    - Helps with the heart, blood sugar, insulin resistance and diabetes
    - Helps athletic performance and memory and mood and skin
    - The best way to get this is through supplements NOT powder as that has high levels of toxic metals.
    - Best supplement -  
<https://www.cocoavia.com/vegetarian-capsules-3-month-supply> TAKE FULL 450 DOSE A DAY. Maybe each morning?
      - Ordered 12/23/2019
      - Ordered 2/26/2020
    - POWDER -  
<https://www.walmart.com/ip/Ghirardelli-100-Unsweetened-Baking-Cocoa-8-oz/26441134> Ordered 12/30
- Ginger -.453

- 1 gram of ginger extract a day shown to moderately reduce osteoarthritis pain
- <https://www.consumerlab.com/reviews/ginger-supplement-review/ginger/#whatclfound>
- [https://www.amazon.com/Natures-Way-Certified-Gluten-Free-Vegetarian/dp/B074N99XL1/ref=sr\\_1\\_4?crid=CW10TQOUDTB&keywords=nature%27s+way+ginger+root&qid=1577030455&prefix=nature%27s+way+ginger%2Caps%2C207&sr=8-4](https://www.amazon.com/Natures-Way-Certified-Gluten-Free-Vegetarian/dp/B074N99XL1/ref=sr_1_4?crid=CW10TQOUDTB&keywords=nature%27s+way+ginger+root&qid=1577030455&prefix=nature%27s+way+ginger%2Caps%2C207&sr=8-4)
  - Ordered 2/26/2020
- Vitamin D -.446
  - Multivitamin has it
  - MULTIVITAMIN - [https://www.consumerlab.com/m/reviews/multivitamin\\_review\\_comparisons/multivitamins/#what-mens](https://www.consumerlab.com/m/reviews/multivitamin_review_comparisons/multivitamins/#what-mens)
  -
- N-3 Fatty Acids -.436
  - <https://www.healthline.com/nutrition/12-omega-3-rich-foods#1>
    - Mackerel is #1, Salmon #2, herring a distant #3
  - RIPOFF - DONT ORDER AGAIN! Copper river wholesale best price on smoked salmon - <https://wholesale.copperriverseafoods.com/finishorder.php>
    - Ordered 12/23/2019
- Vitamin C -.424
  - Multivitamin has it
- Vitamin E -.419
  - Multivitamin has it
- Flavan-3-ol -.415
- Garlic -.412
- Vitamin A -.401
  - Do not supplement [https://www.consumerlab.com/reviews/Vitamin\\_A\\_Retinol\\_Beta-Carotene\\_Cod\\_Liver\\_Oil/Vitamin\\_A/](https://www.consumerlab.com/reviews/Vitamin_A_Retinol_Beta-Carotene_Cod_Liver_Oil/Vitamin_A/)
  - [https://www.consumerlab.com/m/reviews/Vitamin\\_A\\_Retinol\\_Beta-Carotene\\_Cod\\_Liver\\_Oil/Vitamin\\_A/#toppicks](https://www.consumerlab.com/m/reviews/Vitamin_A_Retinol_Beta-Carotene_Cod_Liver_Oil/Vitamin_A/#toppicks)
  - Ordered 1/14/2020 - <https://www.vitaminshoppe.com/p/cod-liver-oil-16-fl-oz/vs-3141>
  - <https://chriskresser.com/should-you-really-be-taking-fish-oil/>
  - <https://www.ncbi.nlm.nih.gov/pubmed/15723739/>
    - Fish oil combined with olive oil is best.
- Zn (mg) - .313
- PUFA (g) -.337
- Onion -.3

- Alcohol -.278
  - Limit or avoid for arthritis... no more than a glass a day.  
<https://www.arthritis.org/living-with-arthritis/arthritis-diet/foods-to-avoid-limit/alcohol-in-moderation.php>
  - Dry reds... Pinot Noir is the healthiest type of wine as it has the highest resveratrol concentration.
- Caffeine -.124
- Potassium
  - [https://www.consumerlab.com/reviews/Potassium\\_Supplements\\_Review/Potassium/](https://www.consumerlab.com/reviews/Potassium_Supplements_Review/Potassium/)
  - <https://www.healthline.com/nutrition/foods-loaded-with-potassium>
- Coq10
  - <https://www.consumerlab.com/m/reviews/CoQ10-Ubiquinol-Supplements-Review/CoQ10/>
  - <https://www.samsclub.com/p/mm-coq10-100mg-180ct/prod17030276>
  - Ordered 12/23/2019
  - Ordered 2/26/2020
- Choline
  - <https://www.consumerlab.com/reviews/Choline-Review/choline/>
  - <https://www.amazon.com/Swanson-Alpha-Gpc-Glycerophosphocholine-Milligrams-Capsules/dp/B07FK2SF9N>
  - Ordered 1/1/2020
  - Ordered 2/5/2020
- CFA / Cetylated fatty acid / CFA's Cetyl myristoleate cis-9-cetylmyristoleate (CMO)
  - Ordered 2/5/2020  
[https://www.amazon.com/Natrol-CetylPure-Capsules-120-Count/dp/B000SAPDGI/ref=sr\\_1\\_4?keywords=Cetyl%2BMyristoleate&qid=1580922776&sr=8-4&th=1](https://www.amazon.com/Natrol-CetylPure-Capsules-120-Count/dp/B000SAPDGI/ref=sr_1_4?keywords=Cetyl%2BMyristoleate&qid=1580922776&sr=8-4&th=1)
  - Ordered 2/26/2020
- VERY INFLAMMATORY:
  - Saturated fat (28 grams) +.373
  - Total Fat (avg 71.4 g) +.298
  - Calories (kcal 2056 avg) +.180
  - Cholesterol mg +.110
  - Vitamin b12 ug +.106
  - Carbs (avg 272 g) +.097
  - Protein (avg 79 g) +.021
- Ideal diet based on above recommendations:
  - Green tea daily

- More fiber (beans (navy / white / yellow / roman / adzuki, / split peas, chickpeas, beans cooked, lentils, edamame), broccoli, chia seeds, avocados, pears, strawberries, oats, sweet potatoes)
  - More flavanoids (cocoa, grapes, apples, onions, parsley, thyme, celery, hot peppers, citrus fruit, soybeans and legumes)
  - Omega 3 - Flaxseed, chia seeds, walnuts, fish (salmon, herring)
  - Ginger (snack)
  - Garlic (in soup)
- <https://academic.oup.com/ageing/article/45/4/443/1680839>
  - Protein restriction (10% of calories) and caloric restriction
  - Low protein, high carb is ideal to prolong lifespan
- <https://scrubbing.in/why-your-weight-matters-when-it-comes-to-joint-pain/>
  - 1 pound of weight loss takes 6 pounds of pressure off your hips
- <https://www.drmcDougall.com/health/education/mailings/featured-articles/articles/diet-only-hope-for-arthritis/>
  - Diet appears to be the only hope for OA and can stop disease progression
  - In addition to being **devoid of animal products, the diet needs to be very low in fat** for maximum benefits. Dietary fat has a toxic effect on the intestine of experimental animals, causing injury that increases the permeability of the gut allowing more antigens to enter the body (Pediatr Res 33:543, 1993). Feeding high cholesterol diets to young animals also increases their “leaky gut” (J Pediatr Gastroenterol Nutr 9:98, 1989; Pediatr Res 21:347, 1987). Those vegan diets that have failed to help arthritis patients have been high in vegetable oils, which are known to damage intestinal integrity.
- <https://health.clevelandclinic.org/if-you-lose-weight-you-can-lose-joint-pain-too/>
  - Losing even 11 pounds can reduce OA progression 50 percent
- [https://www.centerwatch.com/clinical-trials/listings/user\\_condition/?q=Osteoarthritis&place=Los%20Angeles.%20CA.%20USA&geo\\_lat=34.0522&geo\\_lng=-118.2437&radius=50](https://www.centerwatch.com/clinical-trials/listings/user_condition/?q=Osteoarthritis&place=Los%20Angeles.%20CA.%20USA&geo_lat=34.0522&geo_lng=-118.2437&radius=50)
  - OA clinical trials
- <https://health.usnews.com/conditions/bone-and-joint-disease/arthritis/osteoarthritis/articles/osteoarthritis-diet-foods-to-eat-and-avoid>
  - Foods to eat and avoid with OA
- <https://www.harvardmagazine.com/2019/05/inflammation-disease-diet>
  - Inflammation might be the root of preventable disease
- <https://health.usnews.com/health-news/blogs/eat-run/articles/2018-10-11/your-anti-inflammatory-diet-is-probably-just-the-opposite?context=amp>
  - Your anti-inflammatory diet is probably just the opposite
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/very-low-calorie-diet>
  - Very low calorie diet info
- <https://www.medicalnewstoday.com/articles/320816.php#4>
  - Initially hard on heart, then better after 8 weeks
- <https://www.ncbi.nlm.nih.gov/pubmed/11707557/>
  - Greater initial weight loss on VLCD improves weight maintenance

- <https://www.uclahealth.org/clinicalnutrition/vlcd>
  - Eighty five percent of patients successfully achieved their weight loss goals, and three years later sixty percent of them had maintained all or most of their lost weight. Accompanying this weight loss, there were marked reductions in blood pressure, improvement of diabetes control, improvement of serum cholesterol and lipid levels, and greater psychological well-being
  - When an individual consumes 1,000 calories per day or less, it has the same effect physiologically as total starvation, i.e., after four to five days the patient's appetite has diminished and is (in most cases) no longer hungry. These initial four or five days may be the most difficult for some patients until the appetite suppression kicks in.
- Most healthguidelines recommend .5 to at most 2 teaspoons of salt per day
- 
- Emailed this nutritionist Reyana Ewing

Autophagy notes:

- <https://www.marksdailyapple.com/7-ways-to-induce-autophagy/>
  - Fast are best at inducing autophagy
  - Exercise regularly (and hard) to maximize
  - Drink coffee (even when not fasting, this induces autophagy)
  - Eat turmeric and extra virgin olive oil
  - Avoid overeating at a meal

Intermittent Fasting & Prolonged Fasting:

- Best practices for fasting to my current knowledge:
  - Go at least 2 days, target 5 days.
  - Have eaten well for at least a week ahead of time, probably longer.
  - Do not work out hard, keep heart rate under 140 during duration of fast, and avg exercise 30-60 mins a day.
- Fasting methods I have found:
  - [Reddit](#) guy lost 96 lbs
    - he did two to three 36 hour fasts a week, didnt ever eat over 2000 calories on any givin day durring the week, and on the weekends, he ate whatever he wanted
    - I wasn't happy with how I looked in the mirror, I was Self conscience wherever I went. And I figured, if the best time to plant a tree was 20 years ago Then the second best time would be now, so I began.
  - [Reddit](#) guy lost 104 pounds over 4 month water fast
    - TLDR:
    - 14 days water fast followed by 5 days keto IF 16-8 1500 calories
    - Repeat until satisfied
    - Racquetball and worked up to running & basketball as weight loss permitted (knees)

- During water fast, took pink salt, lyteshow, etc for electrolytes and noticed a difference when didn't.
- [Reddit](#) guy 4 months of IF & Keto lost 65lbs
  - HIIT. Sprint on treadmill. Lift. Sprint more. Lift. Sprint again. Lift sleeeeeeeep
  - Started 16:8. After a month 18:6. After another month 20:4. Keto just low carbs barely any. Lots of protein and cheese / avocados
- [Reddit](#) guy lost 153 pounds in 9 months
  - I do Keto / Fasting 5 times a week and 60 mins of cardio 5 days a week also daily calisthenics
  - 16:8 mon-fri 1500 - 1900 calories (Depending) if I workout that day or not!
- [Buchinger](#) method (apparently hunger is not so bad?)
  - Downside notes:
    - They only counted a symptom if the patient self-reported it three times. Since I always get severe lower back pain, but never for 3 days, I checked the underlying for the table - and 280 out of 1422 patients report back pain for at least one day. I am sure there are similar stats for the other symptoms. Will try to generate day-by-day stats out of this data.
    - "During fasting all subjects were asked to drink 3 L of water or non-caloric herbal teas daily with an optional portion of 20 g honey. Additionally, an organic freshly squeezed fruit or vegetable juice (250 ml) was served at noon and a vegetable soup (250 ml) in the evening, leading to an average total calorie intake of 200–250 kcal and 25–35 g of carbohydrates per day. "A few hundred calories a day of carbohydrates isn't exactly "water fasting" but I do appreciate reading about fasting studies.
  - Fasting period 5,10,15 or 20 days.
  - Exercise capped at 3 miles daily walking
  - Day before fast, participant has 600 calorie vegetarian diet of 3 meals of rice and veggies or fruits according to individual preference.
  - To start fasting period, intestinal tract emptied through intake of laxative (20–40 g NaSO<sub>4</sub> in 500 ml water)
  - During fasting all subjects were asked to drink 3 L of water or non-caloric herbal teas daily with an optional portion of 20 g honey.
  - an organic freshly squeezed fruit or vegetable juice (250 ml) was served at noon and a vegetable soup (250 ml) in the evening, leading to an average total calorie intake of 200–250 kcal and 25–35 g of carbohydrates per day.



- At the beginning of the fasting period the subjects entered a program of light physical exercise alternating with rest
  - The exercise program consisted of light to moderate intensity outdoor walks and group gymnastics.
  - A mild laxative was applied every second day in order to remove intestinal remnants and desquamated mucosal cells.
  - On the last day of fasting, food was stepwise reintroduced during an average of 4 days, with an ovo-lacto-vegetarian organic diet progressively increasing from 800 to 1600 kcal/day.
  - No caffeine, no alcohol.
- Prolonged fasting - MY LONGEST FAST - 30 hours 12/27/2019 (42 hours now). Longest fast matched 9/22/2020 at 42 hours.
  - BEFORE DOING A LONGER FAST I NEED TO READ ABOUT REFEEDING AND NUTRITION DURING FAST.
  - The first two days of fasting are the hardest. Your blood sugar may drop (mine did), you get headaches, you may feel weak. I spend most of the time in my room alternating between enjoying the view, and wondering what the hell I'm doing there. **But then, on the third day, you do rise again. And it's incredible: I don't feel hungry.**  
<https://www.irishtimes.com/life-and-style/food-and-drink/enemas-laxatives-and-one-nut-my-10-days-at-a-german-fasting-clinic-1.2853558>
  - Prolonged fasts should last 2 or more days but be separated by at least a week of normal diet.
    - PF cycles lasting 2 or more days but separated by at least a week of a normal diet are emerging as a highly effective strategy to protect normal cells and organs from a variety of toxins and toxic conditions (Raffaghello et al., 2008; Verweij et al., 2011) while increasing the death of many cancer cell types (Lee et al., 2012a; Shi et al., 2012). PF causes a decrease in blood glucose, insulin and insulin-like growth factor I (IGF-I) (Lee et al., 2010) and is accompanied by autophagy (Cuervo et al., 2005; Madeo et al., 2010). Recently we have shown that PF causes a major reduction in the levels of white blood cells followed by stem-cell based immune system regeneration upon refeeding (Cheng et al., 2014). Others have reported on the role of PF in causing major decreases in liver and body mass in rats (Wasselin et al., 2014).
  - Appetite suppressants:
    - Water: As mentioned before, start your day with a full glass of cold water. Staying hydrated helps prevent hunger. (Drinking a glass of water prior to a meal may also reduce hunger.) Sparkling mineral water may help for noisy stomachs and cramping.
    - Green tea: Full of anti-oxidants and polyphenols, green tea is a great aid for dieters. The powerful anti-oxidants may help stimulate metabolism and weight loss.

- Cinnamon: Cinnamon has been shown to slow gastric emptying and may help suppress hunger.(1) It may also help lower blood sugars and therefore useful in weight loss. Cinnamon may be added to all teas and coffees for a delicious change.
- Coffee: While many assume that caffeine suppresses hunger, studies show that this effect is likely related to anti-oxidants. Both decaffeinated and regular coffee shows greater hunger suppression than caffeine in water.(2)Given its health benefits (see chapter 21 [REF.]), there is no reason to limit coffee intake. The caffeine in coffee may also raise your metabolism further boosting fat burning.
- Chia Seeds: Chia seeds are high in soluble fiber and omega 3 fatty acids. These seeds absorb water and form a gel when soaked in liquid for thirty minutes, which may aid in appetite suppression. They can be eaten dry or made into a gel or pudding
- <https://paleoleap.com/long-fasts/>
  - There are downsides to fasting... too long and you die of starvation
  - Fasting can reduce resistance to infectious disease.
  - Fat stores toxins and can release these into your body
  - Fasting can turn into an eating disorder
  - Hypotension (low blood pressure)
- <https://www.sciencedaily.com/releases/2019/08/190827111051.htm> Fast 36 hours and eat unlimited 12 hours... results:
  - Average calorie restriction of 35% and lost 7.7 pounds
  - Downregulation of amino acids which is shown to extend lifespan
  - Less bellyfat
  - Lower cholesterol
  - 6 months in the immune function is stable
  -
- <https://www.zerofasting.com/the-physiology-of-fasting/> Physiology of fasting:
  - 0-3 hours normal digestion
  - 4-24 hours
    - Blood glucose drops
    - Release of insulin is low, but glucagon rises
    - Liver glycogen starts to break down
    - Fat stores begin to break down
    - Exercising speeds process
  - 24- 72 hours
    - Fat cells continue to be broken down by the process of lipolysis
    - Ketone production increases
    - Body produces about 80 grams of glucose per day which is used by the brain, the rest of the body uses ketone bodies
    - Ghrelin ( hunger) peaks Day 1 & 2, goes down on day 3
    - Dr. Fung guesses autophagy maxes out at 32 hours

- Day 3- 5 (72-120 hours)
  - Glucose and insulin low, hunger stays suppressed
  - Decrease in IGF-1 (insulin like growth factor)... short term decreases may help anti cancer and anti aging dietary
  - Over 72 hours of fasting, cellular resistance to toxins and stress improves
  - Decreases circulating insulin and glucose by 30% which can decrease risk of metabolic disease
  - Benefits for immunity, inflammation, neurogenesis and metabolic health found
- Day 5+
  - Glucose, insulin and IGF are all significantly reduce, steady state of ketosis and autophagy.
- Day 10+
  - IGF -1 levels as low as those with growth hormone deficiency... a population associated with lower cancer & diabetes and mortality.
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6314618/>
  - PAID FOR BY FASTING COMPANY --- In conclusion, this one-year observational study demonstrates the safety of a periodic Buchinger fast of between 4 and 21 days, as well as its beneficial effects on health and well-being. Periodic fasting led to marked weight loss and improvements in several cardiovascular risk factors, such as overweight, abdominal circumference and blood pressure. It was accompanied by normalization of numerous blood parameters and led to pronounced improvement of the major health complaint in most participants. Importantly, periodic Buchinger fasting was not linked to relevant perception of hunger. On the contrary, it was subjectively experienced as enjoyable, which is an important factor for compliance.
  - Try Buchinger method?
- Motivation idea - attach fasting end to achieving a specific goal, either work or exercise
- <https://www.3010.fit/fasting/>
  - Fasting recommendations including “Snake Juice” recipe
- <https://medium.com/zero-fasting/fast-your-way-to-autophagy-a8eb08c0dc7a>
  - Lady recommends a 72 hour fast
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3106288/>
  - Short term fasting introduces profound neural autophagy
- <https://www.ncbi.nlm.nih.gov/pubmed/20484916/>
  - 30 OA patients underwent ambulant fasting therapy according to Buchinger for 2 weeks with 3 pre-fast days, 8 fast days (300 kcal) and 4 re-feed days as well as follow-up 4 and 12 weeks afterwards
- <https://pmj.bmj.com/content/postgradmedj/49/569/203.full.pdf>

- Longest fast every, 382 days. 27 y/o went from 456 to 180, then maintained at 196 five years later. Took vitamins and sodium / potassium supplements.
- <https://www.gq.com/story/six-day-water-fast-diet>
  - Guy who did a day water fast at ultra fancy resort
- <https://www.express.co.uk/life-style/health/732999/rheumatoid-arthritis-osteoarthritis-pain-treatment-symptoms-diet-food>
  - Doctor lady selling a book suggests 2-4 day fasts
  - 1995, Kavanaghi showed an elemental diet (which is an hypoallergenic protein-free artificial diet consisting of essential amino acids, glucose, trace elements and vitamins) when given to 24 patients with rheumatoid arthritis improved their strength and arthritic symptoms. Reintroduction of food brought the old symptoms back (Br J Rheumatol 34:270)
  - In 1979, Skoldstam fasted 16 patients with rheumatoid arthritis for 7-10 days with a fruit-and vegetable juice fast, followed by a lactovegetarian diet for 9 weeks. One-third of the patients improved during the fast, but all deteriorated when the milk products were reintroduced (a lactovegetarian diet) (Scan J Rheumatol 8:249, 1979).
  - In 1980, Hicklin reported clinical improvement in 24 of 72 rheumatoid patients on an exclusion diet. Food sensitivities were reported to: grains in 14, milk in 4, nuts in 8, beef in 4, cheese in 7, eggs in 5, and one each to chicken, fish, potato, and liver (Clin Allergy 10:463, 1980).
- <https://medium.com/@drstephanie/the-complete-guide-to-short-long-term-fasting-3748f296dfb7>
  - This woman sells keto guides
  - Long term guide to fasting
  - “Instead of piling up food in my fridge that says ‘Come eat me!’ I keep enough for only a couple of days. And I rarely have treats around that might tempt me late at night, which is when I usually crave something really fattening. What am I going to do? Drive out at 11 at night just to satisfy a craving? No, that’s crazy.” — Jennifer Love Hewitt
  - “A 16 hour fast has really kept me in great, great shape.” — Terry Crews
  - 
  - 
  -

## Exercise & Physical Therapy

1. The chance of experiencing pain while cycling increases by 8% with each unit rise of body mass index  
<https://www.verywellhealth.com/bicycling-optimal-exercise-osteoarthritis-2552155>

2. Joel's circuit training plan (try to do 3-5x):
  - a. Calves & hand squeeze
  - b. Abs - leg lifts, McGills, Plank (front & side), bicycle abs, side to side abs, ab wheel roll out
  - c. Shoulders - 5 lb mix, 15 or 30 lbs
  - d. Thighs - Bird dogs, wall sits, air squats, romanian single leg deadlift no weight
  - e. Chest - dips, pushups, bench press
  - f. Back - Pull ups, bent over rows, under dip pulls
  - g. Bridges
  - h.
  - i. Knee hugs (more for time)
  - j. Hip crossovers (lie on back and twist hips side to side)
  - k. Shoulders
  - l. Range of motion is very important in OA perhaps... countries with lowest OA have greatest ranges of motion. Try doing 10 of the
  - m.
  - n. World's greatest stretch for time
  - o. Foam roll glutes
3. Dr. Klashman recommends Mike O'donnell for PT
4. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1119282/>
  - a. The full squat, with the heels on the ground (fig (fig7)7) resets the sacroiliac joints; takes hips, knees and ankles through the full range; and can be very useful in treating backs. To start with, some Westerners have to hold on to a doorframe.
5. [https://www.orthopt.org/uploads/content\\_files/files/Hip%20OA%20Revision%202017.pdf](https://www.orthopt.org/uploads/content_files/files/Hip%20OA%20Revision%202017.pdf)
  - a. Degenerative hip changes occur most rapidly in those with developmental dysplasia of the hip.
  - b. Goal- maintain joint range of motion and muscle strength.
  - c. Results showed that exercise therapy plus education and education only were associated with 6-year cumulative survival of the native hip of 41% and 25%, respectively (P = .034).
  - d. Weight loss is one of the best known therapies
  - e. Flexibility, strength and endurance training help OA  
Bracing is not effective
6. Traction therapy is effective in studies (these were on knees). Seemed pretty significant.
  - a. Ideas:
    - i. Sit on island and dangle hip - UNCOMFORTABLE
    - ii. Dangle leg from pull up bar using Stretch bands
  - b. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6016297/>
  - c. <https://www.archivesofrheumatology.org/abstract/200>
  - d. [https://www.oarsijournal.com/article/S1063-4584\(18\)30752-0/fulltext](https://www.oarsijournal.com/article/S1063-4584(18)30752-0/fulltext)
  - e.
7. Physical therapy recommendations from newport care

- a. Stretches - Twice daily (morning & night)
    - i. Lay on back with legs on wall... 2 minutes each
      - 1. Hamstring toe touch
      - 2. V position
      - 3. Butterfly (feet together)
      - 4. 1 leg straight, leg crossover each side, pull knee towards me
      - 5. Foam roll glutes 1 minute
  - b. Exercises - daily if i tolerate it... 4 sets of everything
    - i. Bird dogs for time (eventually add ankle weights)
    - ii. McGill situps (make sure neck doesn't come forward, keep elbows up) ... do both legs to make it harder if it doesn't hurt
    - iii. Bridges for time with resistance bands... single leg for time (try for 30-60 seconds)
    - iv. Optional - 1 minute wall sit with band around knees
    - v. Optional - 10 one legged Bulgarian deadlifts each leg slow with leg stuck out. Only go as far as mobility allows
  - c. Recommendations in general:
    - i. Do anything that doesn't hurt.
    - ii. Planks are okay....
    - iii. Wait till I have mobility back (like crossing legs without it hurting)
    - iv. Pt says no limits on me... Even a little pain during or after exercise is okay. Just be smart and take rest days when needed and stop activities if too much pain
8. Possible new exercises for circuit training found from site:
- a. Clrcuit training for time, avg heart rate, max hr rate?
  - b. Air squats
  - c. [Lay on side and lift legs \(outside of hip\)](#)
  - d. [Lay on side and put foot on bench and use inner muscles to lift hips](#)
  - e. [Hip hike \(stand on platform with one foot and go up and down with hip\)](#)
9. [Healthy joint exercises image](#)
10. Work hip abductors
11. Mike Ciaccio - Wear hip brace for golf rounds, not for practice to ensure muscles stay strong
12. [Professional golfers](#) have hips shaped differently than the general population
13. Swim in pool but only after slow acclimatization
14. Find close gym with recumbent exercise bike?
15. Yoga may help OA?
16. Look at club cancellation rules?
17. Recumbent bikes?
- a. <http://www.richardscyclery.com/> - \$50 / day
  - b. <http://sunseeker.bike/index.php/products/ez-sport-cx/>
  - c. <http://www.bentrideronline.com/>

18. The risks to cold water immersion may not be worth the benefits as those benefits are unproven
19. <https://www.nutritiousmovement.com/world-osteoarthritis/>
- a. Work on range of motion
20. <https://onlinelibrary.wiley.com/doi/full/10.1002/acr.20164>
- a. Both hip and knee pain participants stated that they could predict the occurrence or severity of night pain, since it was dependent on the level of activity they did throughout the day. Therefore, the more active they were during the day, the more pain they would experience at night. This forecast of night pain was consistent for mild, moderate, and severe hip and knee pain groups. Participants stated that night pain was “an overuse thing,” and that if they “overdid it” during the day, they would “pay for it” at night-time. The activities that exacerbated night pain were everyday activities (e.g., standing, cooking, shopping, and walking), as well as recreation, sport, and occupational activities.
21. <https://www.bmj.com/content/342/bmj.d1165>
- a. Results Patients with osteoarthritis had excess all cause mortality compared with the general population (standardised mortality ratio 1.55, 95% confidence interval 1.41 to 1.70). **Excess mortality was observed for all disease specific causes** of death but was particularly pronounced for cardiovascular (standardised mortality ratio 1.71, 1.49 to 1.98) and **dementia associated mortality (1.99, 1.22 to 3.25)**. Mortality increased with increasing age (P for trend <0.001), male sex (adjusted hazard ratio 1.59, 1.30 to 1.96), self reported history of diabetes (1.95, 1.31 to 2.90), cancer (2.28, 1.50 to 3.47), cardiovascular disease (1.38, 1.12 to 1.71), and walking disability (1.48, 1.17 to 1.86). However, little evidence existed for increased mortality associated with previous joint replacement, obesity, depression, chronic inflammatory disease, eye disease, or presence of pain at baseline. **The more severe the walking disability, the higher was the risk of death (P for trend <0.001).**
22. <https://onlinelibrary.wiley.com/doi/full/10.1002/art.10332>
- a. This is the first population-based study of hip OA in China to use standardized radiographic methods and definitions. We found that hip OA was 80–90% less frequent than in white persons in the US. Identification of the genetic and environmental factors that underlie these differences may help elucidate the etiology and prevention of hip OA.
  - b. Average height of chinese men this period was 5’0” and weight was 116. No wonder they had less OA.... way less bodyweight and BMI. Less impact on joints
- 23.



# Supplements

1. Dr. C
  - a. No harm in taking them
  - b. Some small scale studies show pain improvement
  - c. Supplements not FDA regulated, you have no idea what you are getting. He doesn't have a brand to recommend other than maybe Costco
  - d. Attending takes glucosamine chondroitine ....
2. Celecoxib - NSAID...
  - a. Celecoxib had a statistically significant improvement effect  
<https://nccih.nih.gov/research/results/gait/qa.htm>
  - b. Can cause stomach lining bleeding and other problems
3. Glucosamine with chondroitine- 1
  - a. 54 study review from 2015 - cover 16,000 knee OA patients - "glucosamine plus chondroitin was the only treatment exhibiting clinically significant improvement from baseline pain and function"  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4649492/>
  - b. Effective in NIH study but small cohort -  
<https://nccih.nih.gov/research/results/gait/qa.htm>
  - c. No benefit in one study -  
<https://www.health.harvard.edu/blog/the-latest-on-glucosaminechondroitin-supplements-2016101710391>
  - d. No pain relief - <https://www.ncbi.nlm.nih.gov/pubmed/16495392>
4. Probiotics for gut biome?  
<https://www.urmc.rochester.edu/news/story/5326/the-bugs-in-your-gut-could-make-you-weak-in-the-knees.aspx>
5. Probiotics?
6. Curcumin supplements combined with piperine -1
  - a. Positive evidence supporting this as a safe dietary supplement at 1,000 mg daily for OA <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5664031/>
  - b. Needs piperine included in pill to work.
  - c. [Costco - Nature's Lab Turmeric with Bioperine](#)
  - d. Trader Joe's carries, not sure of quality.
  - e. Also combine with boswellic acid  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5761198/>
7. Collagen supplements - safe, but not amazing evidence for it.
  - a. MUST be derived from high quality animal parts...
  - b. <https://www.ncbi.nlm.nih.gov/pubmed/30681787>
  - c. Positive benefit in osteoarthritis  
<http://www.scielo.br/pdf/rbgg/v19n1/1809-9823-rbgg-19-01-00153.pdf>... need 12 gram daily supplement.
8. Gelatin (supplement at the same time with vitamin C and calcium)



- a. Take it 1 hour before I do my 15 minute light loading PT of the joint  
<https://www.thorne.com/take-5-daily/article/gelatin-shots-a-new-approach-to-sports-nutrition>
9. S-adenosylmethionine -1
  - a. <https://www.mdedge.com/familymedicine/article/65390/safety-and-efficacy-s-adenosylmethionine-same-osteoarthritis>
10. Avocado Soybean Unsaponifiables ASUs -1
  - a. <https://www.arthritis.org/living-with-arthritis/treatments/natural/supplements-herbs/guide/avocado-soybean.php>
  - b. <https://sci-hub.tw/10.1002/1529-0131%28199801%2941%3A1%3C81%3A%3Aaid-art11%3E3.0.co%3B2-9>
11. Cetylated Fatty acid - 1
  - a. <https://www.winchesterhospital.org/health-library/article?id=104660>
12. Ginger and Galanga
  - a. <https://www.intechopen.com/books/pharmacology-and-nutritional-intervention-in-the-treatment-of-disease/pharmacological-and-clinical-effectiveness-of-zingiber-officinale-and-alpinia-galanga-in-patients-with>
13. Cat's claw -1
  - a. <https://www.ncbi.nlm.nih.gov/pubmed/11603848>
14. niacinamide and calcium
15. 9 supplements for osteoarthritis -  
<https://www.arthritis.org/living-with-arthritis/treatments/natural/supplements-herbs/9-supplements-arthritis.php>
16. Fecal transplant - has led to the death of patients from antibiotic resistant ecoli, don't go to tijuana.
17. Methotrexate - drug with some effects -  
<https://www.mdedge.com/rheumatology/article/202085/osteoarthritis/methotrexate-significantly-reduced-knee-oa-pain>
18. CFA's Cetyl myristoleate cis-9-cetylmyristoleate (CMO)
  - a. <https://www.consumerlab.com/search/cetyl-review/>
  - b. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5340442/>
  - c.

## Mental game

1. Do online therapy with highest rated doc for medical issues?
2. Talk to friends and family extensively
- 3.

# Surgery

1. Gene therapy options? [https://en.wikipedia.org/wiki/Gene\\_therapy\\_for\\_osteoarthritis](https://en.wikipedia.org/wiki/Gene_therapy_for_osteoarthritis)
2. Could this drug combo reverse arthritis? alpha-KLOTHO (aKLOTHO) and TGF beta receptor 2 (TGFβR2)  
<https://www.medicalnewstoday.com/articles/drug-combo-reverses-arthritis-in-rats>
3. Dr. C
  - a. Stem cell I am on the hook for it, costs \$2k a pop... One study showed benefit, most are not clear cut. We may not have tools to measure it.
  - b. Have you had patients do it?
    - i. Dr. C can do it if a patient requests it.
    - ii. He says you can try it... he has zero guarantees. It's costly.
4. Fecal transplant for OA?
  - a. Dr. C. no clue
5. Surgical options for regenerating lost cartilage?  
[https://amp.reddit.com/r/longevity/comments/bkfb2k/samumed\\_begins\\_phase\\_3\\_trial\\_of\\_cartilage/](https://amp.reddit.com/r/longevity/comments/bkfb2k/samumed_begins_phase_3_trial_of_cartilage/)
6. Investigate? <https://clinicaltrials.gov/>
7. Doubts on stem cell treatment?  
<https://ipsell.com/2018/03/bigger-picture-study-casts-big-doubts-on-stem-cells-for-knee-arthritis-today/>
8. Chris woodson did Greg Thompson's leg
- 9.
- 10.
11. Adipose-derived mesenchymal stem cell therapy in the treatment of knee osteoarthritis: a randomized controlled trial | Regenerative Medicine  
<https://www.futuremedicine.com/doi/10.2217/rme-2018-0161>
12. At 6 weeks after a Mesenchymal stem cell injection for osteoarthritis in one hip.  
<https://news.ycombinator.com/item?id=16633413>
13. Cayman clinics  
<https://regenxx.com/blog/blogging-caymans-amazing-results-banana-republic-clinics/> &  
<https://regenxx.com/blog/umbilical-cord-stem-cell-therapy-for-knees/>
14. Read animal studies on stem cell transplants for osteoarthritis
15. Umbilical Cord-Derived Mesenchymal Stromal Cells (MSCs) for Knee Osteoarthritis: Repeated MSC Dosing Is Superior to a Single MSC Dose and to Hyaluronic Acid in a Controlled Randomized Phase I/II Trial - Matas - 2019 - STEM CELLS?  
<https://stemcells.journals.onlinelibrary.wiley.com/doi/full/10.1002/sctm.18-0053>
16. Stem cell therapy <https://www.cellmedicine.com/stem-cell-therapy-for-osteoarthritis/>
17. The human umbilical cord stem cells improve the viability of OA degenerated chondrocytes <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5802223/>

18. Stem cell cellogenics panama from mike
19. This guy seems like a hip leader, talk to him?  
<https://www.drmarcphilipponmd.com/patient-journey-orthopaedic-hip-surgeon.html>
- 20.
- 21.

## Concerns / Questions:

1. Dr. Klashman visit:
  - a. I visited 2 surgeons - Dr. Cheung and Dr Tsai. Neither had much advice outside of diagnosing the issue and talking about shots or surgery. I want to know what I can do to live with OA for as long as possible before surgery and if there are any treatments that significantly extend hip life or possibly experimental approaches to a cure.
    - i. Diet - I am following an anti-inflammatory diet based on Dietary Inflammatory Index study (similar-ish to mediterannean).
    - ii. Also trying intermittent and prolonged fasting
    - iii. Prefer to avoid medications / surgery if possible
    - iv. Stem cells - seems like evidence is not supportive
      1. Evidence is horrible according to klashman
  - b. Golf - every time i play my hip hurts by the 14th hole and is significantly more painful the next couple of days, should I stop?
    - i. He says golf may be okay
    - ii. Walking on hills or stairs bad
  - c. Ask PT if I can stand in seat on bike
  - d. Inflammation is a minor component
  - e. No way to fight wear and misrepair
  - f. Top guys says stem cells are garbage
  - g. How long will hip repair last
  - h. Old people do better with hip replacements... problem is young guys play hard and destroy it.
  - i. Talk to mike about golf.
  - j. Sitting all the time is safest. Won't progress it.
  - k. Hardest for hip is seated to standing. Air squats might be bad?
  - l. I might make it to 50. Lots of surgeons won't touch someone under 50.
  - m. Lifestyle needs to be a big part of this.
  - n. Weight loss is the best possible thing I can do
  - o. PT could help too
  - p. I have a shallow hip joint to start with
2. Dr. Tsai diagnosis? Could it be related to back? Concern about Xray dosing doing a back xray and passing through organs if not presenting strongly there? Did have a very sore

back from too much golf 6 weeks ago 10/14 prior to injury originally, back cleared up, hip pain continued

- a. Definitely OA of the hip
  - b. Keppler scale of 3-4.... Subjective
  - c. If it bothers me more, call Corrine and get hip injection.
    - i. Corrine Clayton
    - ii. 562-424-6666 ext 247
    - iii. [cclayton@memorialorthopaedic.com](mailto:cclayton@memorialorthopaedic.com)
  - d. Impressions of TSai:
    - i. Smart
    - ii. Did not like i didn't want hip injection, was not very helpful on answering questions after that
    - iii. Did not like questioning his background, but had good points
    - iv. Wants to do Total Hip Replacement more quickly than I feel comfortable with.
    - v. Says he does more hip replacements than anyone else at memorial
3. I need to get my knees xrayed and checked for osteoarthritis as well?
- a. Dr. cheung - Get xray of both knees.
  - b. Dr. Cheung - Both knees are healthy!
4. Do I have lots of bony growth / osteophyte formation around the lower right section of my right hip xray? Do I have bone on bone osteoarthritis? Would you say my image shows Grade 2 or Grade 3 OA according to Kellgren's 1963 scale?
- a. He says I am grade 2.5 -3 from xray... not 4.
  - b. I see the prevalence of total hip replacement at fifty years of age was 0.58% and increased to 1.49% at sixty years, 3.25% at seventy years, 5.26% at eighty years, and 5.87% at ninety years of age... does that hold true for me or am I going to need it much sooner since I am so young and already have clear OA in my hip? How advanced am I?
  - c. If dr. cheung can get me to my 50's he's happy....
  - d. Dr. Tsai - impossible to predict... could be okay for years.
5. Will I need blood tests to rule out rheumatoid arthritis? Or am I not presenting any symptoms similar to that? Will I need any of these tests - Complete blood count, erythrocyte sedimentation rate, C-reactive protein, rheumatoid factor, and cyclic citrullinated peptide antibody tests?
- a. Dr. Cheung - pattern is not consistent with Rheumatoid... my pattern looks osteo. Rheumatoid is unlikely.
  - b. Dr. Tsai - not needed.
6. I have been reading a ton and from my understanding the only two really proven ways to slow degeneration is to lose weight and do the right exercises?
- a. Dr. Cheung - My weight is good for american...
    - i. Do low weight stuff
    - ii. Cycling, swimming, no pounding
    - iii. Be moderate

- b. Dr. Tsai - Not an issue for me.. Not overweight. PT won't slow progression. Don't run or play basketball
- 7. Does the way I walk affect OA? Toes in or toes out?
  - a. Dr. Cheung - Zero data showing anything
  - b. Dr. Tsai -
- 8. Is golf unsafe or damaging for my hip? I saw that in this [study](#), common activities that exacerbate pain include abduction and internal and external hip rotation... Could my hip OA have been caused by golf? I have practiced every day since I started a year and a half ago pretty much and had a big hard swing where I put max effort through it? Is there a brace like this [ossur one](#) that could prevent hip rotation and allow me to golf?
  - a. Dr. Cheung - Prescribe hip brace
  - b. Dr. cheung - never heard of golf doing this much arthritis.
  - c. Dr. cheung - genetic component..
  - d. Dr. Tsai - Not enough of an issue to refrain. Can play golf. Doesn't think a hip brace makes enough. Jumping and impact is worse than shearing forces. Hip brace will be uncomfortable and won't help enough.
- 9. I am only 35 and have OA... my goal should be to extend the time till hip replacement from maybe 10 years out to 20 years right? In that vein, is golf dangerous? How many minutes a day of exercise is permissible? How much exercise am I allowed to do on the hip? I usually do several hours a day, do I need to cut that back? I assume I can't run outside anymore. Could I run if I got a treadmill with a lot of spring to it or will that extend the damage? I have a treadmill desk I work at, it moves at 0.5 - 2 mph (slow walk), that's okay to use? Most of the exercises I see online for hip arthritis seem ridiculous to me such as sitting knee extension or one leg wall squat.. are those intended for the older out of shape people who usually get arthritis or do I need to scale down to them?
  - a. Dr. Cheung - He will prescribe brace
  - b. Dr. C - Doesn't know about number of minutes a day...
  - c. Dr. Tsai - just be aware of pain or discomfort. Be careful on treadmill desk... avoid walking. Use symptoms as my guide for walking vs sitting.
- 10. Is there any risk with continuing to do upper body exercises? Am I more at risk of developing OA in other parts of my body like my hands or shoulders if I do so? For example, can I do pullups, pushups, dips, shoulder presses, etc?
  - a. Dr. Cheung - No risk
  - b. Dr. Tsai - Should be fine.
- 11. [Professional golfers](#) have hips shaped differently than the general population?
  - a. Dr. Tsai -
- 12. Get bone density test?
  - a. Dr. Cheung - No
  - b. Dr. Tsai - No
- 13. Could I have sciatica or a pulled muscle?
  - a. Dr. Cheung -

- b. Dr. Tsai - Do hip cortisone and numbing medicine shot and that will reveal whether or not its hip. If pain goes away, its hip. If not, it's back and need to see back specialist
- 14. Questions to qualify doctors & PT
  - a. What percentage of the patients you deal with have OA?
    - i. Dr. Cheung - 50% general OA, hip more unusual...
    - ii. Dr. Tsai - I do mor etotal hips at this hospital than anyone else.
  - b. How many patients with OA do you have under 40? Do you have any different treatment options for them?
    - i. Dr. Cheung - I am rare...
    - ii. Dr. Tsai - Young patients for muscular stuff, old patients for OA
  - c. How many athletic patients do you have?
    - i. Dr. Cheung -
    - ii. Dr. Tsai - Sports medicine
- 15. Are there benefits to doing some sort of traction for the hip or low back?
  - a. Dr. Cheung - No harm... doesn't mean there is benefit. Upside down hang? Data is not there?
  - b. Dr. Tsai - No.
- 16. I am usually pretty disciplined about nutrition and exercise, so I can do whatever needs to be done that way. It looks like the ideal weight from the [metro life tables](#) for a guy my height and build is 174 - 191 lb + 5 lb for clothing? So 173 without clothes could be a reasonable goal? I have successfully used MyFitnessPal in the past to reduce my weight and have begun doing so again. I am also trying intermittent fasting (eating all my allowed calories between 10 am and 6 pm each day).
  - a. Dr. Cheung - In general, weight loss is a good thing. My BMI isn't bad... I am just a big guy.
  - b. Dr. Tsai - Won't comment
- 17. I was prescribed duexis, but I have no interest in taking painkillers and I can exercise through the pain at this point. I figure if the pain becomes unbearable, just do the joint replacement at that point? Is there anti inflammatory effects I need regardless of pain effect? Is there anti inflammatory drugs without side effects and without the pain killing
  - a. Pain is improving.... 0-1 when active, 2-4 when sitting (I just avoid sitting for now).
  - b. Dr. Cheung says drugs were prescribed solely for the pain and if I don't have pain, I don't need to take it.
  - c. Dr. Tsai - recommends anti-inflammatories, see what what works for you.
- 18. How many doctors visits do I need if OA will progress slowly till 50? Just call as needed or some schedule?
  - a. Dr. Cheung - As needed... he wants to follow up on initial hump. He won't do it unless I am in a lot of pain. Symptoms (feel pain or loss of function).
  - b. Dr. Tsai - Only check it if it's painful
- 19. How long do I need to do PT? Just till it feels better and I have a program of my own to follow?

- a. Dr. Cheung - Do it for at least the first month to get muscle strain under control then graduate to home program.
- b. Dr. Tsai - Doesn't think it makes a difference... doesn't understand the problem with current pain. If hip, no therapy will help fix it.

20. Stem cell treatment?

- a. Dr. cheung - not great evidence
- b. Dr. Tsai - A lot of money, no studies prove it is effective. \$8-10k. Radiologist to inject it? He has no patients who did it for hips, knee patients tried it and did not have benefit.

21. Supplements? Which ones do you recommend? What sources should I get them from?

- a. Dr. Cheung, not great evidence, costco has a good reputation
- b. Dr. Tsai - No recommendations.

22. Gut biome related? Any evidence? Would pre / pro biotics help treat it? Fecal Transplant? Major antibiotics taken during knee infection.

- a. Dr. Tsai -