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Goal: develop gym plan that I can start on morning of Friday 9/13

- don't need to read entire book - can skip sections that don't directly relate to goal (fat loss, motivation, vocal, strict dieting)
- mostly focus on what exercises / how much / how often
- minimal focus on diet, as it pertains to building muscle
- come back later to read more in depth / understand all concepts

TODO:

- create WO routing using Ch 21 formula.
- watch form videos
- plan supplement schedule

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Ch 0: Bonus

biggerleanerstronger.com/bonus
- links to form demonstration vids
- list of favorite tools for motivation

Ch 5,6: definitions

Ch 7: 10 worst fat loss myths
- energy balance = calories in vs calories out
  - ↳ in > out = gain weight
- dietary fat similar to body fat, only requires 0-2% of energy to convert
- alcohol can't be stored as body fat, but
  - ↳ blunts fat burning, increases rate of carbs → body fat
- training muscles doesn't burn the fat covering them
- meal freq unimportant for energy expenditure / weight loss
- to lose fat but not muscle, need resistance training

Ch 8: 10 worst muscle building myths
- heavy weightlifting = strength gains = mass gains
- "newbie gains" 6-8 months of first weight lifting body hyperresponsive to muscle gain
- "progressive overload": increase muscle size + strength, easiest way to do: progressively increase weight
- free weights (dumbbell, barbell) > machines for gaining muscle / strength
- "compound exercises": involve multiple joints / muscles
  - ↳ best exercises
  - ↳ isolation exercises: 1 joint, only few muscles (inferior)
  - ↳ compound: more time efficient, allow lifting heavier weights → better progressive overload, significantly raise testosterone + growth hormone levels (since more total muscle involved)

Ch 8:

- to progressive overload:
  - ↳ follow proven progression model
  - ↳ track workouts
  - ↳ adjust diet / training as needed
- "pump" when muscle contracts, metabolic byproduct buildup, causes burning sensation
  - ↳ body pumps blood to carry away + muscle swell
  - ↳ pump increases protein synthesis, but not a strong muscle building synthesis like mechanical tension
- cardio
  - ↳ short term makes fatigued → harder to progress in lifting
  - ↳ long term: disrupt cell signaling related to muscle growth
  - ↳ but, significant health benefits, most do it correctly (more in later)
- free weights, compound exercises, progressive overload = most important
- exercise makes healthier, but no guarantees for strength/muscle
- most reliable way to gain muscle = gain strength
- #1 goal: increase whole-body strength
- due to anatomical differences, same amount lean muscle → strength vary up to 25%
- "newbie gain": can lose fat, gain muscle same time, afterwards one or the other

calorie deficit: ↓ ability to create muscle, ↓ testosterone, ↑ cortisol

- progressive overload: increase weight, not type of exercises

Ch 9: 3 Little Big Things about Rapid Fat Loss

- Michael Moss's "Salt, Sugar, Fat" book on food science
- clean food more conducive to weight loss, harder to overeat
- digesting food, body in "fed" postprandial state, storing small amounts of fat
- after digesting, "fasted" state burns fat
- to gain muscle and not fat, macronutrients key
- "if trying to gain weight but aren't, probably need to eat more"

Ch 9:

- all sugars (mono-, di-, oligo-, poly-saccharides) converted to glucose, but some types (like mono-) convert faster
- dietary fat: only eat enough to stay healthy
- generally accepted, keep saturated fat under 10% daily calories
- Omega-3: many important health benefits, most people too low, fix w/ supplement
- macronutrient balance: proteins, carbs, dietary fat
- consume more protein = faster fat loss, ↑ muscle gain, ↑ calorie burn, ↓ hunger, ↑ bone, ↑ mood
- protein intake particularly important when exercising (higher demand)
- ↑ saturated fat = ↑ heart disease
- monounsaturated fat = ↓ heart disease (ex. olive oil)

Ch 10: 3 Little Big things about Building Muscle

- 3 pathways to muscle building
  - ↳ mechanical tension most important
- heavy, low-rep weightlifting = ↑ muscle strength, high mech tension
- light, high-rep = muscle endurance, low muscle tension
- muscle growth when protein synthesis > protein breakdown rates
- sleep deprivation directly inhibits muscle growth
- exercise is catabolic activity; repair/recovery/growth happens after
- calorie deficit: muscle repair/growth impaired
- eating protein as important (if not more) than enough calories
- Carbs also important: converted to glycogen => signal muscle repair/growth
- low carbs + exercise = ↑ cortisol, ↓ testosterone
- amount dietary fat unimportant
  - ↳ also, higher fat means less room for carbs
- high-protein, high-carb diet when building muscle

Part 3: "Inner Game" (p 113-157)

key takeaways only (come back later in-depth

Ch 11

- The little black book of weekend motivation hacks

Ch 12 Anatomy of willpower

- 3 aspects of willpower
- "I won't" inability to say no
- "I will" ability to do difficult tasks
- "I want" ability to remember the why/goal when tempted, slip-ups

Ch 13 13 ways to boost willpower / self-control

- stress drains willpower + self control
- to combat willpower challenge: slow breathing to 10-15 sec / breath
- things that decrease stress
  - ↳ aromatherapy: easy to incorporate w/ diffuser
  - ↳ giving / receiving massage
  - ↳ regular sex
  - ↳ enough sleep
  - ↳ avoid screens before bedtime (after sunset)
    - ↳ melatonin suppression impairs sleep
    - ↳ high intensity or blue light worst for melatonin
    - ↳ use flux or laptop, NightShift on iOS
    - ↳ sleep in complete darkness
  - ↳ use tech less
  - ↳ walking in nature, hot baths, exercise

Ch 14: How to train willpower

come back to this chapter

- self-control highest in morning, steadily declines
- can increase willpower by training it w/ small, regular acts of self-control
- "pause-and-plan response": pause before act, notice what about to do, choose
- successful strategy: notice/accept undesirable feeling, remind that can't control where mind goes but can control response, remember goal/why

Ch 14:

- if dreading something, commit to doing for 10 min, then decide to continue
- thinking about future reward at stake + how giving in sacrifices it → lower chances to act against long-term goal
- precommitment: take action now that makes more difficult/uncomfortable to change mind in future
- limit exposure to people failing willpower challenges
- join forces w/ someone on same path as you + making progress
- avoid moral licensing (by being "good" earn right to be "bad"), instead remember why / long-term goals
- we give future selves too much credit
- don't have to be perfect to win fitness game - just good enough most of the time
- avoid "what the hell effect": giving in again since already "messed up"
- view wins as evidence of how important goals are to us, not as complacency

Ch 15: Finding biggest fitness Why's

- people w/ vague, unrealistic, or uninspiring fitness goals are first to quit
- establish what your ideal body looks like visually by finding 3-4 pics and saving somewhere
- affirmations: positive statements that describe how want to be
  - ↳ ex: "I'm full of energy all day"
- TODO affirmations: organize affirmations into 4 categories: physical, mental, emotional, spiritual
  - ↳ physical: bodily function + physical energy levels
  - ↳ mental: mind's ability to remember, focus, compute
  - ↳ emotional: positive + negative sensations
  - ↳ spiritual: sense of purpose / motivation
- brainstorm reasons for getting in shape + write down
- remember / reference affirmations + pics when need pick-me-up

Part 4: Diet Advice

Ch 16:

- 1) how much you eat more important than what eat
  - ↳ both calorie intake and macronutrients
- 2) eat foods you like
- 3) majority of calories should be nutritious
  - ↳ at least 80% of calories from nutritious, relatively unprocessed foods
    - ↳ lean protein, fruits, veggies, whole grains, legumes, nuts, seeds, oils
  - ↳ provides lots of fiber : good for intestinal function
- 4) eat on schedule that works for you (timing doesn't really matter)
- diet: how lose fat, maintain body fat level, boost muscle growth
- training: how gain/maintain muscle mass
- diet won't work unless you can stick to it

TODO

Ch 17-20 (come back to)

- calculate calories / macros
- pre / post workout nutrition
- making meal plan
- how to "cheat" on diet

Part 5: Exercise Advice

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Ch 21: Ultimate workout plan for men

2-3 major muscle groups trained per workout

PPL split

- push: chest, shoulders, triceps
- pull: back, biceps
- legs: including halves

4-6 reps per hard set

- weights usually around 80-85% of 1RM
- heavy, low-rep ⇒ high muscle gain // strength
- not so heavy that struggle to control weights ⇒ injury
- significant muscle growth requires taking sets close to technical failure (difficult w/ high-reps)
- for most hard sets (except some isolation exercises w/ more reps)

9-15 hard sets per workout

2-4 minutes rest b/w hard sets

- rest preps muscles to exert max effort in each set
- more rest ⇒ more reps ⇒ more muscle growth
- rest slightly less (2 min) for smaller muscle groups (biceps, triceps, shoulders)
- rest more (4 min) for larger groups (back, legs) if HR hasn't settled or need more rest
- suggestion: read on phone (Kindle app) w/ down time

3-5 train major muscle groups every 3-5 days

- most important: how heavy weights are + how many hard sets / week
- frequency (# workouts / week) less important than overall volume (total sets/week)

1-2 days off / week

- no more than 6 days/week serious exercise (resistance or high-intensity cardio)
- intense exercise w/o rest: physical + mental burn-out

8-10 rest every 8-10 weeks

- 1) reduce workout intensity / volume (deloading)
- 2) take 5-7 days off weightlifting

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Ch 21

Double Progression

- work w/ given weight, once hit top of rep range for certain # hard sets (1-3) increase weight
- then, if come w/in 1-2 reps of bottom of rep range w/ new weight work w/ it
- end each hard set 1-2 reps shy of technical failure
  - ↳ avoid absolute failure: not necessary for strength gain
    - leads to breakdown in form ⇒ injury

Tempo

- how quickly raise/lower weights
- traditional "1-1-1" tempo
  - ↳ 1 sec: first contract or lengthening
  - ↳ 1 sec (or shorter): pause
  - ↳ 1 sec: final part of rep

Warm up for workouts

- warming up increase in temperature of musc. tissue insignificant in preventing injuries
- but warming up = improved technique
  - ↳ troubleshoot form + "groove in" movement patterns
- as weights get heavier, bad form more dangerous
- short warm-up ↑performance levels (by heating muscles + increasing blood flow)

- How to warm-up:
  - ↳ do several sets w/ first exercise for each muscle group
    - 10 reps w/ 50% of hard set weight, 1 min rest
    - 10 reps, same weight, slightly faster pace, 1 min rest
    - 4 reps w/ 70%, 1 min rest

Intensity / focus

- intensity: don't leave anything in the tank, no missing reps (whether good
- focus: on task at hand, not other distractions

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Ch 21:

Deload Week

- weeklong reduction in training intensity (weight lifted) or volume (# hard sets)
- alleviate "accumulated" nervous sys fatigue, joint/ligament strain, ↓risk of injury, ↓psychological stress
- deload every 8-10 weeks

How to avoid injuries

- most lifting injuries from failing to recover from previous WO, not training too intensely in single session
- RSI: repetitive stress injuries
  - ↳ eliminate w/ rest, stop training muscle or entire muscle group
- if experience pain, stop immediately
- pain isn't "burning" sensation, ask self if:
  - ↳ pain on just one side of body
  - ↳ pain concentrated on joint/specific spot
- progress gradually
  - ↳ o/w form breaks down, excess stress on joints/ligaments
  - ↳ if newbie, adding 10 lb to big lifts every 1-2 weeks for first few months is great
- use good form
  - ↳ "cheat reps" add weight, but ↓training quality, ↑risk of injury
  - ↳ especially important for compound exercises (involve most weight)

Key Takeaways

- "hard set": heavy set taken close to failure
- Signs that need deload: progress stalling, ↓sleep quality, ↓motivation, WO's feel harder than should
- if hit pain, stop, rest few min, try again
  - ↳ if still hurts, do another exercise, come back to it in next WO

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Ch 22: Cardio

- cardio not that important to build muscle, lose fat
- HIIT: high-intensity interval training most effective for fat loss
  - ↳ alternate (almost) all-out sprinting w/ low-intensity recovery
- ventilatory threshold (VT): intensity where labored breathing
- HIIT goal: reach VT at high-intensity intervals
  - ↳ total time at VT determines VO effectiveness
- best HIIT cardio to preserve muscle/strength: biking, running
  - ↳ o/w can do other low-impact methods: swimming, jump rope, elliptical, body-weight circuits
- HIIT rest should be active (continue moving)
- 1:2 ratio of high : low intensity
- 2-3 min low-int warm-up, 20-25 min of intervals, 2-3 min cool down

Ch 23: Best Exercises

- only need to focus on minority of exercises
- 6 major muscle groups: chest, shoulders, back, arms, core, legs

Chest

- pec major has two heads: clavicular head, sternocostal head
- focus on clavicular head in WU's:
  - ↳ it's smaller, stubborn part of pec
  - ↳ exercises best for it also great for sternal head
- incline and reverse-grip press emphasize clavicular head
- best exercises: barbell bc
  - ↳ barbell bench press (incline, flat)
  - ↳ dumbell bench press (incline, flat)
  - ↳ dip*
  - ↳ cable fly*

(continued)

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Intranet research notes: lower back pain

My injury: L5 spondylolithesis
↳ pars fracture + vertebra shifts forward

Isthmic spondylolisthesis (spine-health.com)
↳ fracture occurs most commonly when young (5-7 yrs old), w/ symptoms not developing until adulthood
↳ 5-7% of population have fracture or spondylolisthesis
↳ ~80% of spondylolisthesis have no symptoms
↳ only 15-20% symptomatic cases need surgery
↳ at L5-S1 (my injury) not usually instability because ligament (sacral alaligament) connects L5 to sacrum, preventing progression of slippage

Grading (severity of slippage)
↳ Grade 1: 0-25% of vertebrae has slipped forward
↳ G2: 26-50%, G3: 51-75%, G4: 76-100%
↳ My injury: ~30% so low grade 2

Isthmic spondy. common symptoms:
↳ low back pain
↳ pain worse when standing, walking, bending backwards
↳ pain better when sitting

Nonsurgical treatment
- pain meds such as acetaminophen or NSAID's to reduce inflammation
- heat/ice
  ↳ ice directly after activity that causes pain
  ↳ heat relax muscles, promote blood flow/healing movement
- physical therapy
  ↳ Focus on hamstring stretching: twice daily to alleviate stress on lower back
    ↳ mostly for leg pain (sciatica)

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Back brace? (spine-health.com, "when to consider BE")

- DO NOT DEPEND on for long-term relief
  - ↳ only for short-term relief
  - ↳ can ↑ muscle atrophy, ↑ dependence on brace, weakening back → ↑ pain, ↑ chance of injury

How to adjust training (startingstrength.com, "spondylolisthesis issue")

- Mark Rippetoe response
  - ↳ doctor merely diagnoses then covers ass by discouraging weightlifting
  - ↳ flexion/extension exercises of spine (ex: sit-ups, back extensions) worsen symptoms
  - ↳ exercises holding spine in normal anatomical position isometrically (squats, deadlift) fine
    - ↳ NECESSARY for stabilizing injury
  - ↳ form extremely important, and competition no longer possible, but shouldn't eliminate
- Anecdotal evidence from others on forum
  - ↳ squatting, deadlifting, has helped eliminate pain
  - ↳ cannot lose form, might not be able to attempt "max" lifts