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I was having the usual bad time sliding my creaky, resinous post-OR body back into my clean clothes. I was delighted, however, to see that my sneakers were already untied, so I could simply slide them on. Kicking them off is my default, but I was struck by how warmed I felt by this tiny investment in my *future self*. I've since tried to keep this useful *mental model* in mind in my professional life (though my frenzied after-work starch intake and reclined > seated > standing > moving ethos betray an incomplete fealty elsewhere).

We all know the future self, whether we apply that name or not. Diet, exercise, and sleep are classic investments in a more alert, capable, and vital hereafter, though they may feel like sacrifice in the present. A bed made upon waking, a chef's prep and *mise en place*, your grocery and packing list all take time and effort now but save time, decrease friction, and bring joy in the future. Procrastination, lack of preparation, and haphazard organization reap the opposite: static, frustration, anxiety, and redoubled effort.

The future self is really two people. The first is *who you are* in some future space (that is, 15 lbs lighter, plays guitar, travels, parents, reads, or what have you). The second is the real person who has to *do stuff*. Future you has clinic every week, has to follow up with Mr. A about his PSA in six months, has to be reappointed to hospitals and colleges, give presentations, and so on x1000. Despite this heady potential and these obligations, the future self lacks agency; it is at the caprice of the choices you make between now and then. My hypothesis then is: *habitually and explicitly* attending to the future self will pay outsized dividends in achievement and satisfaction, "closing the gap between selves."¹ Not groundbreaking stuff, I know (*did this clown just tell me to eat spinach and exercise?*), but there you are, searching through EMRs again and again, filling and signing and dating 70 requisitions a day, negotiating with Mr. A for the third consecutive visit about the need for a biopsy, searching inboxes to cobble together CPD reporting. Sisyphean sorrow, with little time or energy remaining to move more valuable rocks at work, or to lose 15 lbs, play guitar, travel, parent, or read.

Psychologists describe the failure to invest in the future self in terms like *pain avoidance*, *status quo bias*, and *hyperbolic discounting*. We are wired to punt on unpleasantness and move it to the less distressing future, and to specifically view the same onerous task in the future as less painful than in the present. We choose immediate rewards, even if smaller, over distant rewards or simply opt to take the path of least resistance and do nothing.

Mental models are frameworks that help us understand the world and make decisions. You use several already at work. Failure to store vs. failure to void, because of the bladder or the outlet. Organic vs. psychogenic ED. Risk stratification to align investigation and management intensity. Renal failure as pre-renal, renal, or post-renal. A tubular structure can only be blocked from the inside, the wall, or the outside. Neoadjuvant, adjuvant, and salvage therapy. These cognitive shortcuts allow us to perform feats of clinical thinking and predictions our past selves would find unwieldy.

Bigger-picture models can be drawn from major fields of study; identifying these phenomena in life helps us think and make decisions.² Too abstract? Consider some examples. Algebra invokes the impact of multiple variables in decision-making.³ Asymptotes inform us about diminishing returns. Normal distributions help us understand outliers and why it's not so crazy that "my uncle smoked a pack a day for 60 years and never got cancer." Compounding and exponentials inform both public health and personal wealth. From physics, we learn from entropy (unpredictable complications, your cluttered desk) and inertia or momentum (in diagnosis and treatment); from chemistry, activation energy and catalysts; and from biology, evolution informs quality improvement, while organizations are much like ecosystems.

I propose a model to help quantify the value of investing in the future self: the area under the curve (AUC). I'm not talking receiver-operator curves and the newest competitor to PSA or urine cytology, more like plotting [Joules = watts x seconds], the old faithful *fab* $f(x)dx$. I don't know what to do with that integral squiggle either, so let's walk through this together.

We're talking about the present self's impact on the future self, so the x-axis of our model is *time*. The y-axis reflects what we do. Call it *work*, *thinking*, or *effort* as examples. Any point on the graph reflects the effort you are expending, so the AUC is the *total amount* of effort over time. If an investment of time and effort now saves a dozen iterations of even modest effort in the future, the overall expenditure will be lower. Conversely, small, repeated efforts on a project may feel unpleasant now, but avoiding a titanic bulge at the deadline is worthwhile. Visualizing alternative timelines by comparing AUCs lays bare the smarter path and combats innate discounting of the future self.

AUC thinking preserves the work that clear-eyed present you has done by sending a probe into the future to remind you how to act. Do this, for example, in your dictations: "I'll see Mr. A with a repeat PSA in the new year. *We've agreed that if it is over 6.5, we'll move forward with a biopsy.*" A little text file in your Dropbox with instructions how to access documents for reappointment or CPD will warm future you's heart next year. A few minutes to plan your week to prevent the usual reactive urgent-but-not-important widget cranking will compound productivity.

AUC thinking makes a mental note when you are slogging through a repetitive task. It shows the value of SOPs and checklists. Building EMR, letter, or email templates, pre-filling requisitions, and popping reminders on your calendar attenuate the special agony of administrative cruft and perhaps mitigate against burnout. There are dozens of opportunities you'll notice as your year unfolds. Consider the emotional AUC as a multiplier on the effort scale. Recurring low-value tasks feel crummy, disproportionate to the actual exertion, and working under time pressure is doubly stressful.

AUC thinking gives a fighting chance against the bias towards inaction when faced with large projects or aspirational goals. It prevents the can from being kicked down the road to decant anxiety and unburden the lazy present self. It reminds you that some effort now, to chip away at that presentation or grant application or couch-to-5K will flatten the curve down the line and help bring peace, success, and happiness to the future you who awaits, fingers crossed.

References

1. Maglio SJ, Hershfield HE. Pleas for patience from the cumulative future self. *Behav Brain Sci* 2021;44:e46. <https://doi.org/10.1017/S0140525X20000953>
2. Mental Models. Farnam Street. Available at: <https://fs.blog/mental-models/>. Accessed May 5, 2022.
3. Leveridge M. The algebra of clinic and telephone medicine. *Can Urol Assoc J* 2020;14:296-7. <https://doi.org/10.5489/cuaj.6925>

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