



# A journey toward lasting behavioral change

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Life & Health



**SCOR**  
The Art & Science of Risk



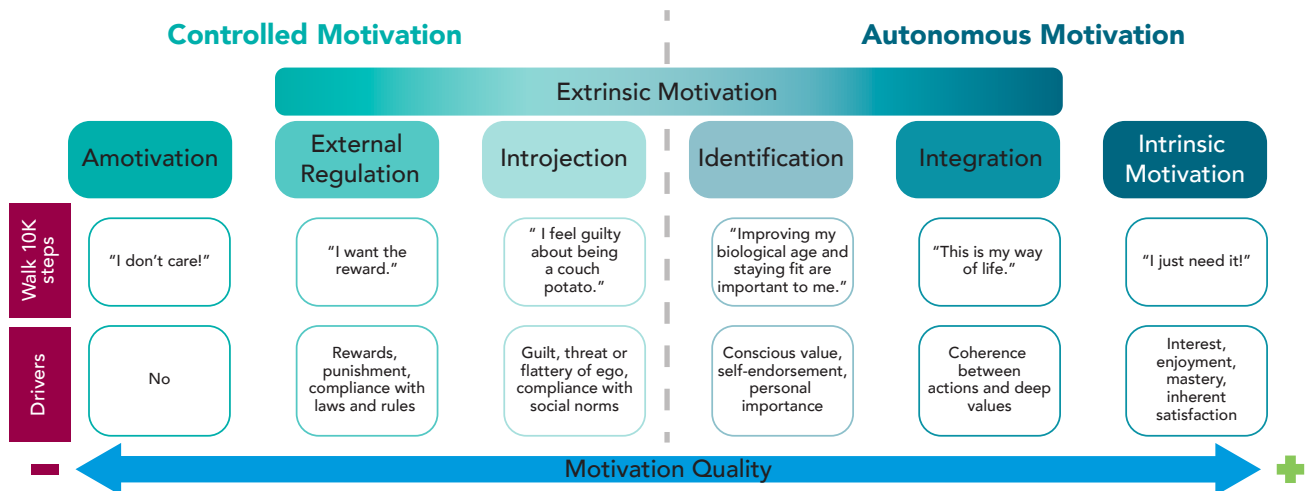
Maintaining a healthy lifestyle is already a well-known way to mitigate morbidity and mortality risks, widely used in public policies and the insurance industry. But while the relevance of a healthy lifestyle seems obvious to most people, successful implementations are usually difficult, and outcomes are sometimes disappointing. Why? Supporting healthy living is not just about raising awareness; it must lead to lasting behavioral changes. But most human behaviors are sensitive to a wide range of factors and are deeply ingrained in people's minds, making behavioral change very difficult.

In this article, we cover a few key processes and factors we have identified through our research that influence our behavior. We will first focus on **why** we do what we do by exploring the concept of motivation through the prism of **self-determination theory**. Second, we will explore **how** we can adopt new behavior, especially by creating new habits and routines. We will highlight the role of prompting, the time needed for an effective change, and a very practical and powerful way to accompany behavioral change: **the stages of change model**. Finally, based on those insights, we will identify **what** elements should be part of a relevant, efficient and economically viable prevention program based on physical activity, with a look at how SCOR is applying this knowledge to improve the health of insurance customers.

### 1. Motivation – the power of the “why”

Motivation is what drives us to change or maintain demanding behaviors. It is the “why” behind every action. Understanding the motivation process is key to behavioral science but is difficult because motivation is not observable and is usually assessed through psychological theories and models.

Self-determination theory (SDT) is one of the most widely used<sup>1</sup> theories of motivation and is an elegant framework to understand why quality of motivation matters. SDT considers motivation as a continuum that increases in quality from Amotivation (no motivation) to Intrinsic Motivation (driven by the inherent satisfaction derived from the activity and the strongest form of motivation). To better understand what this continuum means, let's take the physical activity example of a task to walk 10,000 steps, as shown in the figure below:



Motivation quality is closely related to an individual's level of regulation. Self-regulation is the ability to control emotions, impulses and behavior. The more self-regulated (autonomous) an individual is, the more intrinsic or integrated the motivation.

However, motivation varies between people, and for a given person varies between contexts and even between tasks. Vallerand et al.<sup>2</sup> proposed that various forms of motivation can coexist at three levels – global, contextual and situational. Global motivation is an inherent characteristic of an individual and is defined by his/her level of self-regulation regardless of the activity (which can be likened to General Causality Orientation concept under SDT). Contextual variations capture differences in motivation for a specific field of activities. For example, an individual might love to run (intrinsically motivated) but hate to do housework (amotivation). Situational refers to how levels of motivation can also vary over time. For example, an individual might run for pleasure (intrinsic) on a sunny Sunday but feel compelled to do so (introjection or identification) on a rainy Wednesday.

Several motivation levels may interact for the same activity. An individual might exercise to have fun (intrinsic), to be healthy (identification) and to compete with others (introjected). Depending on where an individual is on the motivation continuum for a given activity, different drivers will be effective. Rewards that are a key element of many health applications offer a form of controlled motivation and will be effective for those motivated by external regulation. Many studies<sup>3</sup> have shown that controlled motivation is more unstable over time and less efficient for maintenance or lasting change. The key to long-term engagement is intrinsic motivation.

To be successful in the long term, a health incentive program should include drivers to support the process of individual transformation from external regulation to self-regulation. In this way, an individual's motivation quality can be improved through the **internalization process**. SDT supporters consider that fostering Autonomy, Competence and Relatedness in the activity is a way to self-endorse and integrate new habits, improve motivation quality and strengthen behaviors. As psychology professor Edward Deci puts it: "Don't ask how you can motivate others; ask how you

can create the conditions within which others will motivate themselves".

## 2. New behavior formation – the alchemy of the "how"

### 2.1 Think small, achieve big

One of the key elements of a successful change of behavior is setting a goal. But it is important to set goals that are appropriate to the level of ability. This has been identified as a key element of successful behavioral change formation. This well-known phenomenon in psychology has various names (optimal challenge, challenge-skills perceived balance, etc.) and supports behavior by reinforcing competence and intrinsic motivation<sup>4</sup>. In addition, creating habits is a very good way to implement a behavior change. A habit doesn't need reflection or energy; this is the kind of thing you do without even thinking about it. And human beings are strongly driven by the Least Effort principle, which means they will "use a course of action that appears to require the smallest amount of effort or expenditure of energy"<sup>5</sup>.

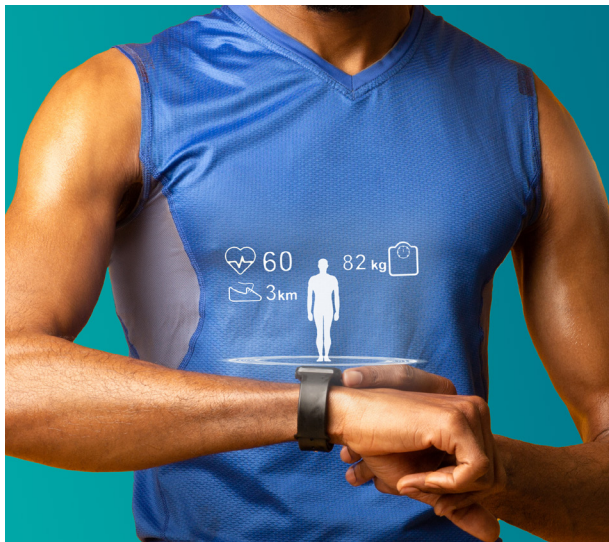
Mixing achievable goals and habit creation has proved to be very efficient when implementing change.

Several authors have developed this idea. In his book *Tiny Habits: The Small Changes that Change Everything*,<sup>6</sup> B.J. Fogg suggests that a behavior change can be implemented in a series of small steps rather than trying to make a big change all at once and describes the transformative power of small actions. To make a behavior "tiny", the author suggests doing two things. First, establish a starter step. This is a very small movement in the right direction toward the intended behavior. The second step in making things "tiny" is to scale the activity back by lowering the level of physical exertion. In a similar vein to Fogg's approach of starting small and breaking down a habit into tiny behaviors, James Clear's book *Atomic Habits*<sup>7</sup> attempts to dispel the idea that massive success requires massive action. The book focuses on how habits are the compound interest to self-improvement.

## 2.2 Prompting, right here, right now!

We have seen that motivation and adequacy between ability and task are essential. B.J. Fogg proposes a very easy-to-understand model based on three criteria - motivation, ability and prompt<sup>6</sup>. Each of the criteria is a nudge that encourages behavior change by increasing motivation, making it easier (increasing ability) or offering a well-timed prompt. When motivation is high, even actions that are difficult are taken. When the behavior is easy, motivation does not need to be high to encourage action. The prompt needs to be well-timed so that motivation and ability are sufficiently high to encourage the behavior.

Sending users of mobile health applications activity prompts tailored to their current context (e.g., time of the day) may encourage individuals to participate in the suggested activity, depending on their environment. In a study investigating the long-term continued use of wearable devices among older adults<sup>8</sup>, consistent contextual cues were found to support long-term wearable use. Klasnia et. al.<sup>9</sup> also found that contextually tailored activity suggestions can be helpful for users to increase their step counts. The researchers found that delivering a walking suggestion increased the subsequent 30-minute step count by 24% on average. The effect was stronger initially and reduced over time, demonstrating that prompting may help to get started but become less effective over time.



## 2.3 Behavior change: a question of time!

You may have heard the 21/90 rule suggesting it takes a minimum of 21 days to form a habit and a minimum of 90 days to form a lifestyle. The rule was developed by Maxwell Maltz<sup>10</sup> in 1960, based on his observations as a plastic surgeon whose patients were adjusting to lifestyle changes. While this rule was not scientifically proven, it has become popular as a rule of thumb and has inspired further research to find the true magic number.

In 2010 a study on habit formation<sup>11</sup> found that it takes on average two months to form a habit, although there is a wide range around this average. Across a range of different behaviors, participants took between 18 and 254 days to establish a routine so the new behavior became automatic. Two important influence factors according to this study are:

1. Consistency: practicing the behavior at the same time and/or in the same situation/context
2. Clarity: well-defined goals

In a study of exercise habit formation among 111 new gym members<sup>12</sup>, it was found that consistency and low complexity were key to habit formation. A consistent schedule of exercising at least four times per week for six weeks was a minimum requirement.

Keeping the workouts skill-appropriate and easy to follow was found to increase the likelihood of a successful program.

A 2019 systematic review of experimental studies<sup>13</sup> concluded that intervention techniques that last longer better promote habit formation. Effective interventions lasted on average 7.3 weeks compared to interventions that showed no effect, which lasted 3.7 weeks.

Although the length of time it takes to form a new habit will vary, it is usually a question of months but, first and foremost, of consistency and clarity.

## 2.4 Support change and manage relapse

There is an interesting framework that widens what we have learned so far: **the transtheoretical model**<sup>14</sup>, also called the stages of change model, or Prochaska's cycle, developed by Prochaska and DiClemente. For Prochaska and DiClemente an individual may be in various stages in any change process:

**Precontemplation:** not intending to act in the foreseeable future. Need to build the foundation of behavior change by raising awareness.

**Contemplation:** beginning to recognize that a behavior change would be beneficial. Need to foster an increasing commitment to change.

**Preparation:** intending to act in the immediate future. Need to define clear, achievable goals to begin taking small steps toward behavior change.

**Action:** behavior change in progress. Need to be consistent and build on small changes.

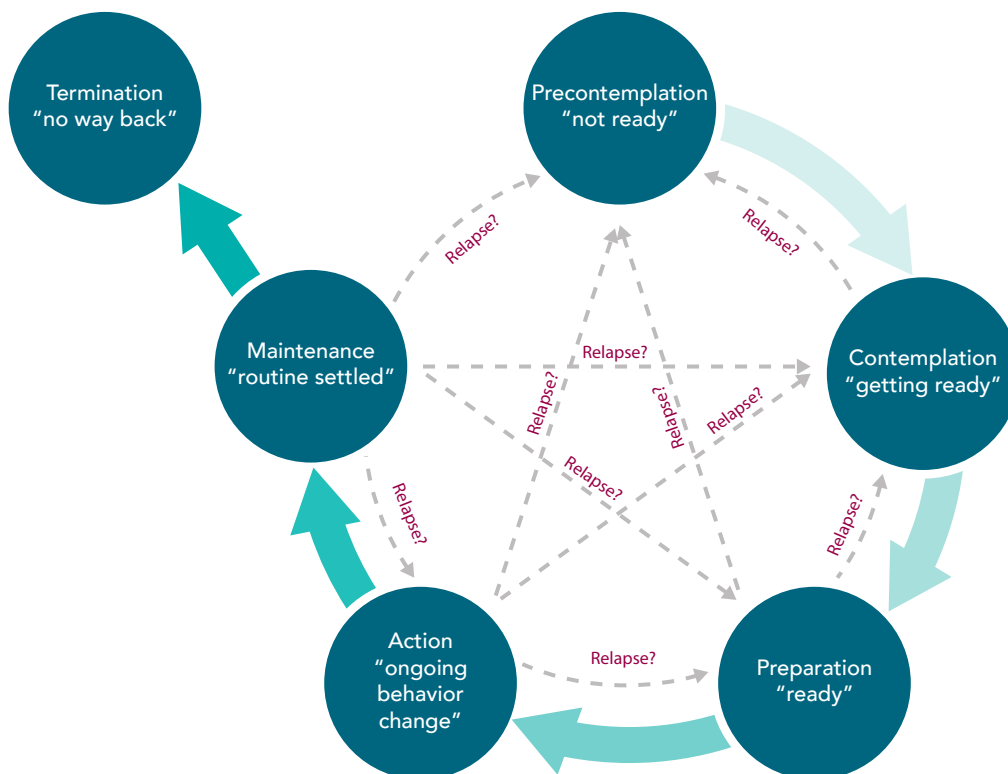
**Maintenance:** able to sustain action – habit has been formed! Need to avoid relapse.

**Termination:** a new way of life has been formed.

We can note it has strong similarities with SDT. For instance, there are strong correlations between Maintenance/Termination stages and Intrinsic motivation, and between Precontemplation and Amotivation.

Moreover, every stage has a set of recommended actions to move to the next stage. For instance, increasing awareness of the benefits of the new behavior will be key in the Precontemplation phase, while fostering supportive relationships will encourage the Action stage.

But the interesting thing is that the model considers that at every stage before Termination, there's a risk that an individual will relapse back to a former stage. Understanding the relapse risk is key to managing and mitigating it. Lally et. al.<sup>11</sup> found that "missing one opportunity to perform the behavior did not materially affect the habit formation process." Though consistency is important, one bad day doesn't mean all is lost - tomorrow is a new day and you are still on track toward habit formation.



Avoiding a relapse can be assisted by coping planning, a technique to anticipate obstacles that might prevent the desired action or behavior and create specific plans to overcome potential difficulties. As well as having a clear action plan on how to consistently implement a small behavior change, developing a coping plan can help avoid relapse.

Simkin and Gross (1994)<sup>15</sup> studied exercise adherence in previously sedentary women. Participants were asked to report in detail how they would cope with 10 common situations for exercise relapse, such as negative mood, lack of time, bad weather, fatigue or social situations. Women who reported fewer behavioral and cognitive coping strategies relapsed more often. In a 2005 study, Sniehotta et. al.<sup>16</sup> monitored the rehabilitation programs of cardiac patients assigned a physical activity program. Participants with higher levels of coping planning after discharge were more likely to report higher levels of exercise four months after discharge.

### 3. Health program – what is the recipe for success?

But what does the above mean for practitioners who want to design their own health incentive program? Of the many different solutions out there already, only some make use of the principles of behavioral economics. At SCOR, we are already investigating the practical applications of motivation and habit formation principles.

#### 3.1 Reward program as a starter

Several platforms at SCOR offer multiple forms of extrinsic incentivization. Rewards including vouchers and raffle tickets have been provided as part of a SCOR employee pilot through our SCOR/ReMark application GoodLife<sup>17</sup>. When the motivation for exercise is driven by the promise of a reward, we will support external regulation and similarly, if there are consequences to not exercising, such as losing a chance to enter a raffle. The GoodLife application also has a leader board feature that provides a comparison to peers and promotes competition. This social feature prompts introjection as part of

a desire to be in line with the physical activity of other users and maintain a respectable leader board position. This is still a controlled form of motivation but is somewhat more internalized, and therefore of better quality than just offering rewards.

Our partnership with Humanoo is based on similar reward systems but also has a strong content feature designed to raise awareness. This will benefit those in the precontemplation phase by encouraging physical activities or counter-conditioning bad habits. The Humanoo platform also captures several kinds of exercises to promote autonomy and foster internalization by offering users the ability to self-design their own program. It is also worth mentioning that the Humanoo solution tailors the engagement experience to the personal preferences of the end-user. This makes the experience and the routine-building highly individualized.

#### 3.2 One daily activity goal to get into a routine:

We stressed the importance of setting attainable goals earlier in this article. One way to do this is to suggest a bespoke daily goal, for example, a 10% increase in steps. In this way we combine several learnings from above, in particular for currently sedentary people:

- a) They are not overwhelmed by several targets, but able to focus on a specific first step.
- b) The first step is small, taking into account their current activity level and building on it with an achievable goal.
- c) Every day is a fresh start. Missing out one day is not the end of the world. You can start over again the next morning.

In partnership with our client KLV in Austria and the engagement app provider Fjuul, we built a digital community which specifically leverages on attainable goal setting and tiny steps to achieve big changes.

### 3.3 Getting to know the long-term value of physical activity through health metrics: The biological age

As we have seen, the most sustainable changes emerge from intrinsic motivation.

One way to foster intrinsic motivation is the use of a health metric that reports back the positive future impacts on health to the end-user.

SCOR's metric in this respect is the Biological Age Model (BAM). The feedback provided by BAM supports the internalization process. By linking behavior (physical activity) to health (age), an individual will come to value how behavior is beneficial for their health and strengthen their identified and integrated motivation. BAM is a major cornerstone of all health programs co-designed by SCOR and helps create long-term commitment to lasting behavioral change.

### 4. Closing remarks

We are still at the very beginning of our exploration journey, but we understand a few key drivers of behavioral changes and can identify the main pain points to being physically active. The perfect recipe probably doesn't exist, but we are convinced that a **highly personalized program, supporting autonomy, competence and relatedness** and connected to state-of-the-art knowledge in behavioral science will set users up for success.

*This article was developed by Olivier Cabrignac, Head of Innovation for Western Europe and Latin America and Sven Ebert, Head of Product Development, Biological Age Model, with the support of SCOR's Behavioral Science team.*

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## Footnotes

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