

# Chapter 2

## Theories of Physical Activity Motivation

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### Chapter Overview

This chapter describes four types of behavior theories and presents discrete examples of each type of theory as applied to physical activity. *Social cognitive theories* assume that we are motivated to behave based on intentions, and that intentions are based on our expectancies and values about the behavior. Social cognitive theories presented within are the *health action process approach* and *temporal self-regulation theory*, which consider not only the determinants of intentions, but also factors that influence whether intentions are likely to translate into physical activity. *Humanistic theories*, such as *self-determination theory*, share the notion that humans have a common drive to pursue fulfillment. Self-determination theory proposes that we have a set of basic psychological needs that, when met, lead to internal reward. *Dual-process theories* describe two different influences on behavior: reflective processes that are slow, reasoned, and deliberate; and automatic processes that are spontaneous, sometimes irrational, and uncontrollable. The two dual-process theories described here, *hedonic motivation theory* and *theory of effort minimization in physical activity*, describe the outcomes of competition between automatic processes (e.g., a dread of physical activity), and reasoned processes (e.g., a desire to be more physically active). *Maintenance theories* consider why we are physically active, as well as how continuing physical activity regularly in the same context can lead to habit formation. This chapter provides a snapshot of physical activity motivation theories which are continually changing over time to account for new scientific findings as well as innovations in measurement and analytics.

### Physical Activity Motivation Theories

The abundant physical and mental health benefits of physical activity provide ample reason why people *should be* physically active, but seldomly do these explain why people *are* physically active. Think about the people in your life that are regularly active. What motivates them on a day-to-day basis? And those people you know who have started being active but quit: what moved them to start being active? Why did they quit?

Theories provide general frameworks or structures to describe, predict, or understand physical activity behavior or behavior change (Bem & Looren de Jong, 1997; Rebar & Rhodes, 2020). There are many behavior change theories available: one review documented more than 80 theories that are available to organize thinking about which factors impact behavior change and through which pathways (Michie et al., 2014). Practically, theories can inform our efforts to change people's behavior and to understand why certain behavior change efforts may work and others may not (Michie & Abraham, 2004). Throughout this chapter, we consider different types of theories, and provide illustrative applications of these to physical activity motivation.

Historically, theories of physical activity motivation have been adapted from sports and performance psychology (Rebar & Rhodes, 2020; Rhodes & Nigg, 2011), the aim of which is to achieve (e.g., win, improve). Hence, many theories of physical activity motivation focus on the processes of setting and achieving goals to change physical activity. Influences from public health, developmental psychology, social psychology, evolutionary psychology, and neurobiology have led to expansions in the conceptualization of physical activity motivation. Now, nonconscious influences like habits and urges are considered in physical activity motivation theories as well as evolutionary tendencies for humans to exert as little effort as possible when moving (Cheval et al., 2016; Kwasnicka et al., 2016). Additionally, innovations in measurement and analysis have transformed theory from accounts of motivation and behavior on single occasions, towards a portrayal of motivation and behavior as dynamic, changing on a moment-by-moment basis, and acknowledging the longer-term process of maintenance (Dunton et al., 2019; Rebar & Rhodes, 2020).

This chapter is not a comprehensive inventory of physical activity motivation theories. Rather, it showcases different types of theories, and provides illustrative examples of how theories of each type have been applied to physical activity motivation science. Table 2.1 depicts the categories of theories and physical activity motivation theories covered in this chapter. Notably, these categories are not mutually exclusive; many theories could fit within multiple categories. The organizational structure offers a heuristic framework for thinking about the different ways in which physical activity motivation has been theorized.



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**Table 2.1**

*Overview of the Categories of Theories and Examples of Specific Theories as Applied to Physical Activity Motivation*

| Category and Assumptions                                                                                                                                                                                         | Example Theories                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Social cognitive theories:</i> Behavior is motivated by intentions/goals, which are based on expectancies and values about the behavior.                                                                      | Health Action Process Approach (Schwarzer, 1992, 2008, 2016)<br>Temporal Self-Regulation Theory (Hall & Fong, 2007, 2010, 2015)                                                                                                    |
| <i>Humanistic theories:</i> Behavior is motivated by the common human pursuit of fulfillment.                                                                                                                    | Self-Determination Theory (Deci & Ryan, 1980, 2002)                                                                                                                                                                                |
| <i>Dual-process theories:</i> Behavior is motivated by two different types of processes: reflective processes that are deliberate and reasoned, and automatic processes that are spontaneous and uncontrollable. | Hedonic Motivation Theory (Williams, 2018; Williams & Bohlen, 2019)<br>Theory of Effort Minimization in Physical Activity (Cheval & Boisgontier, in press)<br>Affective-Reflective Theory (see Chapter 4; Brand & Ekkekakis, 2021) |
| <i>Maintenance theories:</i> Motivation to initiate a change in behavior is distinct from motivation to maintain behavior change.                                                                                | Theoretical Explanations for Maintenance of Behavior Change                                                                                                                                                                        |

## Theories of Physical Activity Motivation

### Social Cognitive Theories

The main premise of social cognitive theories is that behavior is driven by our goals or intentions, which are informed based on our values and expectations about that behavior. Social cognitive theories take on an agentic view (Bandura, 2001), meaning that people are seen as the active decision-makers and main drivers guiding our own behavior. Due to the assumption that our behavior is the result of acting on deliberative reasoning, social cognitive theories are described as a *reasoned action approach* (Ajzen & Fishbein, 1977; Head & Noar, 2014).

The main predictor of behavior within social cognitive theories is our goal or intention about the behavior. *Goals* are targets or purposes aimed at achievement (Locke et al., 1981), and set the standard for satisfaction of performance (Locke & Latham, 2006). *Intentions* are defined as our perception of the probability that we will do the behavior (Ajzen, 1991; Ajzen & Fishbein, 1977). Intentions can be deconstructed into two components: direction and strength (Rhodes & Rebar, 2017). As applied to physical activity, *intention direction* represents the decision of whether or not to do physical activity (or how much, how often, or which activity to do). *Intention strength* is defined as the intensity of the commitment to enact the behavior or not.

Early social cognitive approaches focused primarily on predicting intentions or goals with the implicit assumption that behavior will follow. However, a multitude of evidence revealed a phenomenon referred to as the *intention-behavior gap*, describing the reality that goals and intentions often do not lead to behavior and behavior cannot be reliably predicted only by goals or intentions (Rhodes & de Bruijn, 2013; Sheeran & Webb, 2016). For example, evidence from physical activity research suggests that if 100 people make intentions to engage in physical activity, 54 of them will likely fall short of enacting their intended physical activity (Rhodes & de Bruijn, 2013).

Goal theories have evolved to propose that translation of goals into behavior is dependent on

characteristics about the goal such as how difficult or specific it is (Kwasnicka et al., 2020; Swann et al., 2020). Intention-based theories have evolved to consider *action control*, a term that encapsulates the factors that impact whether intentions translate into behavior or not (Kuhl, 1984; Rhodes, 2017). Action control factors oftentimes consist of cognitive or regulatory processes that aide in implementing intentions such as planning or self-monitoring (Gollwitzer, 1999; Rhodes, 2017). The two social cognitive models we will be describing further are contemporary evolutions of traditional social cognitive theories, which incorporate action control.

### **Health Action Process Approach**

The health action process approach (Schwarzer, 1992, 2008, 2016; Table 2.2; see specifically Schwarzer, 2008, p. 6, Figure 1) describes physical activity motivation as two separate processes with different cognitive, behavioral, and situational determinants: The first phase is the motivation phase, which culminates in the formation of physical activity intentions. The second phase is the volition phase which leads to actually doing the intended physical activity. The health action process approach theorizes that we experience a shift in mindset when transitioning between motivation to volition phases. A variety of cognitive, behavioral, and situational factors can either help or hinder physical activity intention strength and the translation of intentions into physical activity.



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**Table 2.2***Health Action Process Approach Applied to Physical Activity*

| <b>Phases</b>                                                                                                                      |                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Motivation</i> : Developing physical activity intentions                                                                        | <i>Volition</i> : Acting on physical activity intentions                                                                                                                                                                                                   |
| <b>Stages</b>                                                                                                                      |                                                                                                                                                                                                                                                            |
| <i>Non-intentional</i> : Physical activity intention is absent                                                                     | <i>Intentional</i> : Physical activity intention is formed but no change in physical activity has occurred                                                                                                                                                 |
| <i>Pre-intentional</i> : Physical activity intention is being developed                                                            | <i>Actional</i> : Intended physical activity is being engaged in                                                                                                                                                                                           |
| <b>Constructs</b>                                                                                                                  |                                                                                                                                                                                                                                                            |
| <i>Task self-efficacy</i> : the perceived capability to start physical activity, given current circumstances                       | <i>Action plans</i> : detailed plans for implementing intentions that include when, where and how decisions<br><i>Coping plans</i> : detailed anticipated barriers with specific contingency plans; alternative to initial action plans                    |
| <i>Outcome expectancies</i> : the expected balance of positive and negative outcomes of engaging in the intended physical activity | <i>Action control</i> : the ongoing regulatory processes of evaluating behavior in regard to the intention                                                                                                                                                 |
| <i>Risk perceptions</i> : perceived health threat of not changing physical activity behavior                                       | <i>Coping self-efficacy</i> : the perceived capability to maintain the intended physical activity behavior even in the face of barriers<br><i>Recovery self-efficacy</i> : the perceived capability to recover an intended behavior if it has been stopped |

The motivation phase involves making physical activity intentions. This phase describes behavioral intentions in different stages of formulation, incorporating stages of “non-intention” (the absence of any intention) and “pre-intention” (the early emergence of intention). Factors theorized as influencing intentions are task self-efficacy, outcome expectancies, and risk perception. *Task self-efficacy* is our own perception of our capability to do physical activity, and the theory proposes that stronger self-efficacy will lead to stronger physical activity intentions (Bandura, 1997). *Outcome expectancies* are perceptions of the likely outcomes of physical activity. Outcome expectancies incorporate both anticipations of good and bad outcomes of physical activity, and the weighted cost-benefit balance of them (Bandura, 1997). The health action process approach proposes that the more favorable the anticipated outcomes, the stronger the physical activity intentions will be. *Risk perception* is the perception of risks associated with changing physical activity behavior, relative to the perceived risks of not changing physical activity (Renner & Schupp, 2011). Typically, this is conceived in physical activity research as the perceived health risks of not engaging in regular physical activity, and the theoretical expectation is that a high risk of poor health consequences of inactivity will lead to the initial decision to make a strong physical activity intention.

The volition phase of the health action process approach consists of the enactment and maintenance of intentions. There are two stages of the volition phase: we are in the stage of “intention” when the intention has been made but not acted on, and we are in the “action” phase once the intended physical activity has been initiated. Progression through these volitional phases of health

action process approach is proposed to be implemented initially through action plans and coping plans then followed through with action control. *Action plans* are detailed plans describing when, where, and how intentions will be implemented and are expected to regulate the implementation of intentions. *Coping plans* are set in place as alternatives to the initial action plans with specific anticipated barriers and plans to overcome them, such that potential implementation problems are foreseen and so the enactment of intentions is not derailed (Schwarzer & Luszczynska, 2008). Whereas the plans are intended to be made prior to behavioral engagement, the regulatory process of *action control* is defined within the health action process approach as the continual regulatory process of self-monitoring behavior, reflecting on intentions, and making effortful regulatory action to align behavior with intentions (Schwarzer & Luszczynska, 2008; Sniehotta et al., 2006). When we shift from the volition to the action phase, self-efficacy continues to be integral, but behavior relies less on self-efficacy for engaging in physical activity. Instead, it relies more on *coping self-efficacy*, our certainty that we can maintain the intended physical activity even when barriers are faced, and *recovery self-efficacy*, our belief about to what extent we can recover physical activity if we stop for a while (Schwarzer & Renner, 2000).



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### **Temporal Self-Regulation Theory**

Temporal self-regulation theory (Hall & Fong, 2007, 2010, 2015; Table 2.3; see specifically Hall & Fong, 2007, p. 14, Figure 5) is an evolution of social cognitive theories that present pre-intention and post-intention phases of motivation and accounts for potential factors that may influence whether we act on our intentions or not. Unique to temporal self-regulation theory is the premise that the impact of social, cognitive, and biological influences on behaviors depends on the perceived timing between the anticipated costs and benefits of engaging in the behavior.

Temporal self-regulation theory proposes that physical activity behavior is predicted by intention strength, self-regulatory capacity, and behavioral prepotency. Physical activity intention strength is hypothesized to depend on our connectedness beliefs and temporal valuations (Hall & Fong, 2007). *Connectedness beliefs* are our perceptions about the impact of behavior for later outcomes (e.g., belief that physical activity will reduce risk of future chronic disease), and it is expected that the more

we believe that physical activity will lead to an outcome, the stronger our intentions for physical activity will be. *Temporal valuations* are perceptions of the value of behavioral outcomes (e.g., how important it is to reduce the risk of chronic disease), and it is hypothesized that the more valuable the perceived outcome, the more likely it is that we will strongly intend to engage in physical activity.

**Table 2.3***Temporal Self-Regulation Theory Applied to Physical Activity*

| Phases                                                                                                      |                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Motivational</i> : The impacts on the development and strength of intentions                             | <i>Post-motivational</i> : The impacts on the likelihood of enacting intentions into behavior                                                   |
| Constructs                                                                                                  |                                                                                                                                                 |
| <i>Intention strength</i> : the degree of commitment to engage in physical activity behavior                | <i>Self-regulatory capacity</i> : ability to effortfully regulate behavior, accounting for both cognitive capacity and physiological energy     |
| <i>Connectedness beliefs</i> : the perceived link between behavior and anticipated outcomes of the behavior | <i>Behavioral prepotency</i> : the impact of the frequency of past behavior and/or the presence of triggering cues to action in the environment |
| <i>Temporal valuations</i> : the perceived value of the anticipated outcomes of the behavior                | <i>Ambient temporal contingencies</i> : the perceived disparity in timing of the anticipated costs vs. benefits of the behavior                 |

*Self-regulatory capacity* (or executive control resources) refers to an ability to effortfully regulate behavior and accounts for both cognitive capacity and physiological energy. Considered also within self-regulatory capacity is the ability to compensate or overcome the need for high amounts of self-regulation when it is not available (Hall & Fong, 2010). It is expected that more self-regulatory capacity will enhance the likelihood of acting on physical activity intentions. *Behavioral prepotency* captures the impact of the frequency of past behavior and the presence of environmental cues to action. Behavioral prepotency is thought to be driven by internal urges like hunger or thirst, as well as automatic behavioral tendencies like habits. It is expected that behavioral prepotency that is more supportive of physical activity will lead to more physical activity and make it more likely that physical activity intentions are enacted.

The impact of self-regulatory capacity and behavioral prepotency on the likelihood that we will enact our intentions is theorized as depending on *ambient temporal contingencies*, the balance between the perceived timing of the anticipated costs and benefits of engaging in the behavior (Hall & Fong, 2015). Reward is devalued by time; for example, if it is difficult to engage in physical activity in the current environment and the perceived benefits feel a long way away, the likelihood that we will enact our intentions for physical activity relies more heavily on our self-regulatory capacity and behavioral prepotency than when the environment is more supportive of physical activity. Notably, temporal self-regulation theory describes ambient temporal contingencies as possibly deriving from both social (e.g., support from friends) and physical environmental factors (e.g., neighborhood safety). Additionally, this theory postulates that there is a feedback loop, such that behavior impacts the determinants of future behavior. Specifically, it is theorized that experiences while engaging in physical activity will impact connectedness beliefs and temporal valuations to engage in physical activity in the future.

### Humanistic Theories

Humanistic theories emphasize *self-actualization*: the belief that people are innately driven towards personal growth and strive toward achievement of full potential (Goldstein, 1995; Maslow, 1943; Rogers, 1961). Humanistic theories frame behavior as motivated by our intentional pursuit to achieve self-actualization. Importantly, humanistic theories promote the idea that humans have freedom to act and control their own behavior. It is proposed that people have a common tendency to behave in ways that are adaptive, goal-directed and self-fulfilling. We achieve self-actualization through *learning*: the acquisition of new knowledge, behaviors, skills, and values through study, practice, or experience (Madsen & Wilson, 2012). Humanism postulates that behavior is directly controlled via learning (Knowles et al., 2014). The learner is an active part of this process by making active decisions about what is gained from experiences and what experiences are sought.

Another major tenet of humanistic theories is that humans cannot be reduced to distinct, quantifiable components. A humanistic perspective suggests that behavior is not driven separately by our values, expectancies, goals, and circumstances, but rather that these factors influence our learning about what is and is not fulfilling, and the main predictor of behavior is the internal drive towards self-fulfillment. In accordance with the humanistic perspective, learning is most effective through positive and negative lived experiences (Rogers, 1961). For example, successful achievement of a goal-driven behavior elicits a sense of accomplishment, inherent growth, and self-improvement (Deci & Ryan, 2002). These positive inherent effects of mastery are why humans continue to perform behaviors and strive to perform better than previous attempts (Lavigne et al., 2009). While the mastery of a behavior can be seen to provide a sense of self-fulfillment, the enjoyment of performing a behavior may be equally fulfilling. For example, we do not necessarily need to be expert swimmers to enjoy the experience of swimming. As humanistic theories posit that people are innately driven to actions that promote personal growth and fulfillment, it is reasonable to suggest that behaviors that satisfy such self-fulfillment and reward are naturally motivating (Deci et al., 1999; Teixeira et al., 2012).

### Self-Determination Theory

Self-determination theory (Deci & Ryan, 1980, 2002; Table 2.4; see specifically Howard et al., 2017, p. 1347, Figure 1), arguably the most popular humanistic theory applied to physical activity behavior, suggests that behavior is motivated by different types of motivation: *autonomous* and *controlled* motivation. Autonomous and controlled motivation capture our reasons for engaging in physical activity. *Autonomous motivation* for physical activity leads toward self-actualization either through enjoyment, achievement of goals, or consistency with how we want to be. *Controlled motivation* for physical activity is dependent on external pressures, such as a desire to gain external rewards or avoid externally imposed punishments. For example, people who are motivated to be physically active by enjoyment of engaging in activity are autonomously motivated, whereas those influenced by guilt or obligation to others are directed by controlled motivation. While both autonomous and controlled motivation can prompt physical activity, when external pressures are no longer present, physical activity directed by controlled motivation will likely be discontinued. However, physical activity motivated by autonomous motivation will more likely be reliably engaged in long-term because we are doing it for ourselves; it is *self-determined* (Deci & Ryan, 2002).

Self-determined motivation can be further broken down into degrees of controlled or autonomous motivation (Deci & Ryan, 2002). *Amotivation* is the complete absence of motivation. *Extrinsic motivation* is a controlled form of motivation exerted by external pressure or anticipated external reward for engaging in physical activity, such as anticipation of a certificate or trophy. *Intrinsic motivation* arises from the anticipation of accomplishment, enjoyment, and innate reward from doing the physical activity.

Self-determination theory provides perspective on the types of behavioral regulation that result in differing degrees of controlled and autonomous motivation. *External regulation* captures motivation to act out of desires for external reward or the dread of future punishment. *Introjected regulation* captures motivation of partially internalized ideas and values such as to avoid guilt, seek approval, or protect our sense of self. *Identified regulation* captures influences of more internalized motivation based on our own values and priorities. *Integrated regulation* captures the influence of self-awareness and the motivation to act in line with how we define ourselves. *Intrinsic regulation* represents the influence of purely self-determined motivation, driven by satisfaction and enjoyment from engaging in the behavior.

Initially, these forms of regulation were portrayed on a continuum, with certain types of regulation leading to more autonomous motivation at one end and those leading to more controlled motivation at the other. However, more recent evidence has shown that we can have motivational influence from more than one type of regulation and that their alignment with autonomous vs. controlled motivation is not straightforwardly represented on a continuum (e.g., Howard et al., 2020). We can likely be motivated by more than one type of regulation and the regulation types do not necessarily dictate whether our motivation for physical activity is more autonomous or controlled.

Self-determination is theorized as being achieved through three universal and basic psychological needs that, when satisfied, are important components in establishing intrinsic motivation for behaviors such as physical activity (Deci & Ryan, 2002). Specifically, *relatedness* refers to the need to be socially connected and accepted by others. *Autonomy* speaks to the need for self-governance and the freedom to make decisions about behavior in line with our personal beliefs and values. *Competence* encompasses our belief that we can enact chosen physical activities (Brooks et al., 2018; Deci & Ryan, 2002).

**Table 2.4**

*Self-Determination Theory Applied to Physical Activity*

| <b>Motivations</b>                                                                                        |                                                                                                           |                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <i>Amotivation</i> : No motivation or intention to engage in physical activity.                           | <i>Extrinsic motivation</i> : Motivated by external factors not related to the physical activity or self. | <i>Intrinsic motivation</i> : Motivated by internal rewards, personal growth and enjoyment of physical activity. |
| <b>Regulations</b>                                                                                        |                                                                                                           |                                                                                                                  |
| <i>External regulation</i> : Motivated by external reward or punishment.                                  |                                                                                                           |                                                                                                                  |
| <i>Introjected regulation</i> : Motivated by gains of social approval or avoidance of social disapproval. |                                                                                                           |                                                                                                                  |
| <i>Identified regulation</i> : Motivated by personal values and self-improvement.                         |                                                                                                           |                                                                                                                  |
| <i>Integrated regulation</i> : Motivated by acceptance of physical activity into one's life.              |                                                                                                           |                                                                                                                  |
| <b>Basic Psychological Needs</b>                                                                          |                                                                                                           |                                                                                                                  |
| <i>Relatedness</i> : Enjoyment, belongingness, and accountability through social connections and support. |                                                                                                           |                                                                                                                  |
| <i>Autonomy</i> : Empowerment through sense of control, freedom of choice and self-governance.            |                                                                                                           |                                                                                                                  |
| <i>Competence</i> : Confidence in one's ability to successfully engage in and perform the activity.       |                                                                                                           |                                                                                                                  |

### Dual-Process Theories

Some theories propose that behavior is dictated, at least in part, by automatic desires and biases. These theories are considered dual process because they propose that behavior is influenced by two types of processes: *reflective processes*, which are the deliberate, effortful processes that translate into reasoned action, and *automatic processes*, which are rapid, sometimes nonconscious, and not

dependent on cognitive resources. Common to most dual-process models is the postulate of *default-interventionist architecture*: an expectation that people will, by default, be influenced by automatic processes, unless they have sufficient motivation, opportunity, and self-regulatory capacity to inhibit them (Brand & Ekkekakis, 2018; Evans & Stanovich, 2013). Also common to most dual-process theories is the notion that reflective processes are slower to engage and enact than automatic processes, because reflective processes involve effortful cognitions such as making intentions to engage in a behavior or not, and self-regulation such as planning and problem solving to enact intentions.

Most automatic influences referred to in dual-process theories are considered as manifestations of mental associations between a behavior and cues or attributes (Evans & Frankish, 2009; Rebar, 2017). Such *connectionist models of memory* describe working memory as a network of connected concepts with varying degrees of strength of associations linking concepts. For example, the automatic influence of habit on physical activity behavior is conceived as the mentally held link between “physical activity” and a triggering “cue” (Gardner, 2015). Similarly, tendencies to approach or avoid opportunities to be physically active can be experienced as a result of learned associations between the notion of “physical activity” and the attributions of “good” or “bad” (Conroy & Berry, 2017; Rebar, 2017). Rebar (2017) postulates that there are multiple automatic influences on physical activity behavior which are distinct but related, because they all form a network of overlapping associations of the notion of “physical activity” with a variety of other concepts or attributes. Although not covered in this chapter, a full overview of an additional dual-process theory, the affective-reflective theory of physical inactivity and exercise (Brand & Ekkekakis, 2018) is presented in Chapter 4 (Brand & Ekkekakis, 2021).

### **Theory of Hedonic Motivation**

The theory of hedonic motivation (Williams, 2018; Williams & Bohlen, 2019; Table 2.5; see specifically Williams & Bohlen, 2019, p. 133, Figure 15.1) proposes that environmental cues trigger dual motivational processes that influence behavior: reflective motivation and hedonic motivation. *Reflective motivation* is influence from the desire to engage in physical activity or not, based on expectations and values of physical activity. *Hedonic motivation* is influence from the immediate, uncontrollable feeling or “urge” of wanting to do physical activity or wanting to avoid physical activity. Whereas reflective motivation is based on cognitions about past experiences of physical activity and values and expectancies about physical activity, hedonic motivation originates from genetic predispositions and psychological hedonism. *Psychological hedonism* is our human tendency to pursue pleasure and avoid displeasure (Williams, 2018). Based on our past experiences of physical activity as being pleasant or unpleasant, we will be automatically drawn to approach or avoid physical activity opportunities, respectively.

The theory of hedonic motivation proposes that the dual processes of reflective and hedonic motivation might have the same direction of influence on behavior, in which case behavior would follow the added influences of reflective and hedonic motivation. For example, if you have intentions to engage in more gym workouts and have hedonic motivation of wanting to work-out at the gym, you will work-out at the gym more. But sometimes hedonic and reflective motivation can compete, leading to opposing influential forces on behavior. For example, you may want to be more physically active due to your knowledge of the health benefits (reflective motivation) but have to overcome a sense of dread of physical activity before starting (hedonic motivation; Williams & Bohlen, 2019). In such circumstances, when reflective and hedonic motivation conflict, the theory of hedonic motivation proposes that a decision is made as to whether to act in line with hedonic or reflective motivation. The decision is dependent on the relative strength of hedonic and reflective motivation, self-control resources, and the situational context (Hofmann et al., 2009). If your reflective motivation is strong, self-control is high, and there are few barriers, your reflective desire to engage in physical activity can overcome your hedonic dread to avoid it. However, if your hedonic dread is strong, there are contextual barriers, and your self-

control is depleted, it is more likely the hedonic dread will win out and you will not do physical activity. In accordance with the theory of hedonic motivation, whether the decision translates into physical activity behavior or not depends on *access*: the opportunity to engage in physical activity or not, such as access to gym equipment.

**Table 2.5**

*Theory of Hedonic Motivation Applied to Physical Activity*

| <b>Cue</b>                                                                                                                                                                                                            |                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Stimulus</i> : contextual triggers of the concept of physical activity that initiate the motivational processes underpinning movement                                                                              |                                                                                                                                                                     |
| <b>Psychological Processes</b>                                                                                                                                                                                        |                                                                                                                                                                     |
| <i>Controlled processing</i> : cognitions about expectation of future consequences of physical activity behavior based on past experiences and values                                                                 | <i>Automatic association</i> : mentally held association between physical activity and pleasant or unpleasant, acquired through past responses to physical activity |
| <i>Reflective motivation</i> : influences from the desire to engage in physical activity or not, based on deliberated expectations of the pleasantness or unpleasantness of physical activity                         | <i>Hedonic motivation</i> : influence from the immediate, uncontrollable feeling or “urge” of wanting to do physical activity or wanting to avoid physical activity |
| <b>Influential Variables</b>                                                                                                                                                                                          |                                                                                                                                                                     |
| <i>Situational context</i> : factors in the surrounding context that might inhibit or facilitate physical activity behavior                                                                                           |                                                                                                                                                                     |
| <i>Self-control situation</i> : the circumstance in which hedonic and reflective motivation are opposing, and people may elicit self-control to act in line with reflective motivation, overcoming hedonic motivation |                                                                                                                                                                     |
| <i>Decision</i> : the determination of the “winning” influence of doing physical activity vs. not doing physical activity when hedonic motivation and reflective motivation are opposing                              |                                                                                                                                                                     |
| <i>Access</i> : opportunity or lack of opportunity to perform physical activity                                                                                                                                       |                                                                                                                                                                     |

### ***Theory of Effort Minimization in Physical Activity***

The theory of effort minimization in physical activity (Cheval & Boisgontier, in press) centers around the evolutionary perspective that people have evolved to have automatic attractions toward effort minimization. *Effort minimization* is the process of acting in ways that require the least perceived amount of effort or energy expenditure. Notably, this perception of effort might occur automatically, reflectively, or both. The theory of effort minimization in physical activity puts forth that humans have evolved to avoid unnecessary physical effort, to conserve energetic resources for reproductive activity and somatic maintenance. The theory thus assumes that physical effort is a perceived cost to be avoided and that this leads to a general human tendency to avoid physical activity. The influence on behavior of this automatic draw towards inactivity varies depending on factors of the person, behavior, and context.

The proposed process of the theory of effort minimization in physical activity is that movement-related cues elicit both automatic and controlled evaluations, which in turn lead to controlled or automatic precursors to behavior that direct the decision and plan to produce movement (e.g., physical activity). *Movement-related cues* are contextual triggers of the concept of physical activity that initiate the motivational processes underpinning movement. *Automatic evaluations* are the spontaneous pleasant or unpleasant reactions to movement or sedentary related cues (Conroy & Berry, 2017).

*Controlled evaluations* are the pleasant or unpleasant reflective judgments about enjoyment and anticipated feelings about physical activity (Rhodes et al., 2009). *Perceived effort* is the perceived experience and anticipations of the effortfulness of physical activity. For example, you may be cued by your rowdy dog with their lead in their mouth. This may elicit unfavorable automatic evaluations of physical activity for you, which elicits your tendency to avoid physical activity. However, the cue may also elicit your values and beliefs about walking being good for both you and your dog, so now you are faced with the decision to act in line with your automatic physical activity-avoidance impulse by not going on the walk or your controlled intention to go on the walk.

**Table 2.6**  
*Theory of Effort Minimization in Physical Activity*

| Cue                                                                                                                                                                                                                                     |                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Movement-related cues:</i> contextual triggers of the concept of movement-based behaviors including sitting, standing, and different intensities of physical activity that initiate the motivational processes underpinning movement |                                                                                                                                                                                |
| <i>Physiological state:</i> levels of energy and activation                                                                                                                                                                             |                                                                                                                                                                                |
| Evaluation                                                                                                                                                                                                                              |                                                                                                                                                                                |
| <i>Controlled evaluation:</i> reflective judgments about the overall pleasure/displeasure, enjoyment, and feelings expected from physical activity, as well as reflective knowledge about the benefits of physical activity             | <i>Automatic evaluation:</i> the pleasant or unpleasant experiences that arise rapidly and involuntarily when the concept of physical activity is activated in a person's mind |
| <i>Perceived effort:</i> the subjective experience/anticipation of the effortfulness of the physical activity                                                                                                                           |                                                                                                                                                                                |
| Planning                                                                                                                                                                                                                                |                                                                                                                                                                                |
| <i>Motor plan:</i> specifications about the place, timing, and specific actions of the physical activity                                                                                                                                |                                                                                                                                                                                |

### Maintenance Theories

If you decided to do some physical activity next week, you could probably muster up the necessary motivation to get it done. The call to be active every day for the rest of your life, though, may seem daunting. We can better anticipate likely barriers and plan in the coming days than we can over the rest of our lives. Even with the strongest commitment and best made plans, there will be things that “pop up” to throw you off. What happens if you get sick or don’t feel like being active some days? What happens if you get a new job, have kids, or develop chronic illness or pain? Leading a physically active lifestyle is not as simple as getting really motivated one day and deciding to change your behavior. Maintenance theories differentiate between behavioral initiation factors and behavioral maintenance factors (Fleig et al., 2013; Rothman et al., 2009). *Behavioral initiation factors* capture motivational influences needed to instigate changes in behavior. *Behavioral maintenance factors* are the motivational influences needed for long-term continuation of the behavior change.

Maintenance theories of behavior change describe how at any point in time, we have multiple behavioral options, only one of which may be physical activity. Decisions about whether to do physical activity or not can occur on a daily or even momentary basis (Dunton & Atienza, 2009). The likelihood that we will “choose” a given behavioral option at a given moment in a certain context is described as *behavioral potential* (Kwasnicka et al., 2016; Rotter, 1960). In accordance with this line of reasoning, behavior will be determined by the option with the highest potential in each moment. If the same behavior tends to have occurred in the same occasion, under similar circumstances in the past, then that behavioral option will likely have the highest behavioral potential, making behavior change quite

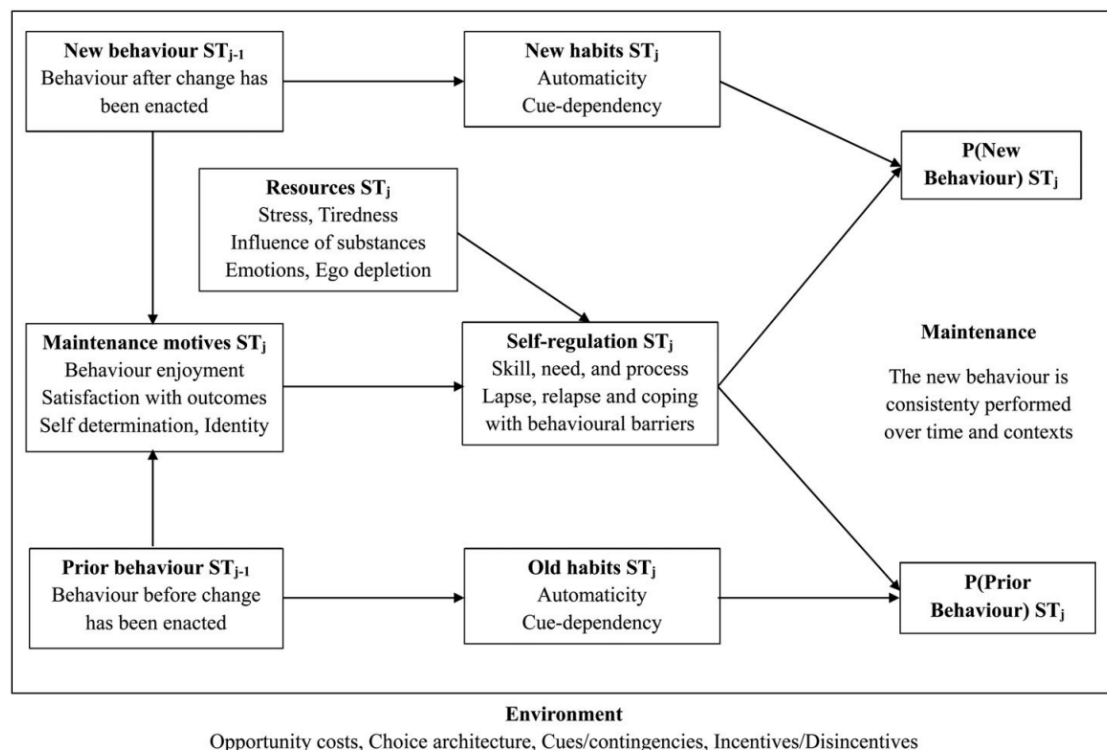
difficult. That past behavior is thought to influence future behavior through changes in motivation is a concept referred to as *dynamic reciprocity* (Kwasnicka et al., 2016). For example, your past experiences with physical activity may influence your attitudes about how future activity will make you feel, thereby influencing the behavioral potential of you to engage in physical activity, relative to other behavioral options.

### **Theoretical Explanations for Maintenance of Behavior Change**

Multiple maintenance theories are available. Here, however, we present common themes shared across those theories, as extracted in a systematic review of maintenance theories (Kwasnicka et al., 2016; Table 2.7; Figure 2.1). While these factors do not represent a theory in the same way as theories cited above, they capture a broad range of inputs on behavior maintenance.

**Figure 2.1**

*Relationships Between Themes from Maintenance Theories Identified by Kwasnicka et al. (2016)*



*Note.* Reproduced from Kwasnicka, D., Dombrowski, S. U., White, M., & Sniehotta, F. (2016). Theoretical explanations for maintenance of behaviour change: A systematic review of behaviour theories. *Health Psychology Review*, 10(3), 277–296. <https://doi.org/10.1080/17437199.2016.1151372> under a [Creative Commons Attribution License \(CC BY\)](#).

Kwasnicka et al. (2016) identified five important theoretical considerations for behavioral maintenance: maintenance motives, self-regulation, resources, habit, and environmental and social influences. *Maintenance motives* are the deliberate reasons we have for wanting to maintain physical activity based on views of ourselves, our values, or our beliefs. *Self-regulation* leads to behavioral maintenance through our diligent self-monitoring and adjusting of behavior, and implementation of effective strategies to adjust behavior when it does not align with our goals or intentions. *Resources* are

important for maintenance in that psychological and physical resources such as self-control and energy are necessary for behavioral maintenance. *Habits*—i.e., the processes by which your behavior is influenced from a cue to act based on well-learned associations between cues and behaviors (Gardner, 2015; Rebar et al., 2020)—are essential for maintaining behavior without relying on self-regulation. *Environmental and social influences* are essential for behavioral maintenance because we tend to maintain behavior which is in line with our social influences and accessible in your physical context.

It is theorized that we need at least a single maintenance motive, or reason, to maintain physical activity behavior. Typically, initial behavior change will occur when motivation is high and there is ample opportunity. As motivation wanes and priorities and opportunities change, self-regulation becomes more relevant for physical activity maintenance. The more often we engage in physical activity within the same context, the more likely it will form into a habit, which means the decision to continue to maintain physical activity will require less deliberation and self-regulation. Importantly, whether we maintain physical activity will also be dependent on the environmental and social context that surrounds you. The theory is that more stable contexts are more likely to lead to habits because it allows for repeated experiences of behavior in the same context such that the cue-behavior associations that underpin habits will be developed and strengthened.

**Table 2.7**

*Theoretical Explanations for Maintenance of Behavior Change Applied to Physical Activity*

| Themes                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Maintenance motives</i> : the reasons people do physical activity                                                                                        |
| <i>Self-regulation</i> : effort applied to actively control behavior by overcoming temptations for inactivity and/or acting on physical activity intentions |
| <i>Resources</i> : psychological and physical factors that support physical activity                                                                        |
| <i>Habits</i> : the processes by which your behavior is influenced from a cue to act based on well-learned associations between cues and behaviors          |
| <i>Environmental and social influences</i> : access to and support of physical activity opportunities                                                       |

## Conclusion

There is no single, optimal way to think about physical activity motivation or behavior change. We have covered only a few of the many available theories of physical activity motivation and behavior (see Michie et al., 2014), and notably, those that we have presented are psychological in nature, so assume that the individual is the most appropriate unit of analysis. Indeed, all theories make assumptions about humans and behavior that are important to keep in mind when attempting to apply them to real-world settings. Social cognitive theories propose that behavior is driven by intent and reasoning based on expectancies and values. Humanistic theories propose that humans are driven toward fulfillment, and motivation is heavily influenced by learning. Dual-process theories posit that there are both reasoned and automatic processes that influence behavior. Maintenance theories postulate that the reasons someone starts physical activity will likely not sustain their maintenance in physical activity over the long-term. Based on these premises, a set of theories have been put forth to help describe and potentially target physical activity behavior change from a motivation perspective. People are unique, situations are unique, and moments in time are unique. As a result, the factors that impact whether we engage in physical activity are many and complex. Theories represent attempts to organize these factors into coherent structures, but in so doing, may over-simplify the motivational processes involved in physical activity.

By identifying and organizing determinants into a coherent structure, theories can help us to

develop physical activity interventions by identifying discrete psychological targets for change, potential pathways by which change may be brought about, and specific techniques that may be most likely to bring about change via those targets and pathways (Michie & Prestwich, 2010). Continued development of theory is needed to help us to continue to refine our physical activity intervention approaches. Theories currently in use, and those that will continue to emerge in the future, can help provide useful frameworks for understanding and potentially enhancing physical activity behavior.

### Learning Exercises

1. Why are motivation theories important for physical activity and sport domains?
2. Which two theories within this chapter posit that behavior motivation is derived from intentions and goals, expectations, and values about the behavior?
3. Which theory presented in this chapter suggests that motivation is driven by external and internal regulations?
4. What two types of processes are said to be involved in dual-process theories?
5. What is the difference between behavior initiation and behavior maintenance?
6. What does it mean if a behavior is described as having high behavioral potential?
7. Our previous experiences with the behavior will influence the level of behavioral potential. What is this concept known as?

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