

# Updating the principles of the Pilates method—Part 2

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The Pilates method has been reinterpreted and developed over the last couple of decades.

This article continues from the previous article in the JBMT that outlined the early history and philosophy of the Pilates method (Latey 2001a). J.H. Pilates (1880–1967) developed his exercise method “Contrology” in the early part of the 20th century. Since the late 1980s the Pilates Method has become an increasingly popular method of exercise. Having looked at some changes to the 1980s, in the previous article, some of the later developments will be described, in the light of “Pilates” early work.

Some of the background to this author’s reinterpretation of the Pilates method will be explained, including examination of Pilates written work, briefly looking at some developments that came after his death, and a description of what the author sees as the most relevant principles in the present day. The aim is to place the Pilates method firmly in the 21st century, with our better understanding of the human body and how it functions. In good hands the Pilates method is much more than a list of exercises. Present day Pilates is seen, by its proponents, as a way of safely connecting and conditioning the whole being, body and mind (Latey 2001b).

## **Steps towards modern Pilates**

Initially, Pilates’ exercise method was primarily for the fit, with gymnasts, boxers and dancers his most frequent clients. The method broadened, possibly with the influence of Clara (Pilates’ wife), as well as the second- and third-generation teachers, and beyond, who reinterpreted the method. With modifications to the principles, and the inclusion of various introductory exercises, the client base has now enlarged to include the general population, and incorporates an extended understanding for post-acute rehabilitation and retraining.

Joseph Pilates along with his philosophy on how to live well, with a balance of mind and body (including practicing his mat exercises daily), developed a variety of equipment for clients to exercise on after his experiences while interned in England during the First World War. Where he applied his knowledge to help rehabilitate the war injured. Joseph Pilates began experimenting with bed springs. He attached the springs to the end of the beds to allow the patients to work with resistance, while still bed bound. He had realised that doing exercise with resistance helped patients recover muscle tone more quickly than without. This led him

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to develop the Universal reformer, a sliding platform with springs on which the client sits, reclines or stands and “the Cadillac” a four-posted bed with springs (Friedman & Eisen 1980). The work expanded to include various other apparatus – which in turn inspired additional mat exercises. Present-day Pilates uses the equipment developed by Joseph Pilates and applies the current principles to improve alignment, increase strength, challenge flexibility and sustain fitness. Further exercises have been developed on the equipment with our broader understanding of how the body works.

Properly supervised, the equipment is considered particularly helpful in post-acute rehabilitation.

In America, in the late 1980s, Eve Gentry developed and refined postural alignment, and the breathing techniques as set down by Joseph Pilates, and connected these changes with a new way of finding “the centre” [see Latey (2001a,b) historical review article, and later in this article], called imprinting (Video, Physicalmind Institute 1992). Gentry’s work focuses awareness on where the vertebrae of the spine are in space, and in relation to the vertical alignment in the whole body. She suggests that by using the deep abdominal muscles to stabilise and support the lower back, the pelvis sustains a more natural posture, without tucking the pelvis, and fits with the concept of the “neutral spine”. This is quite different from the “flat back” of the earlier Pilates approaches to posture and breathing control. Gentry’s approach was more relaxed; with the joints “floating” in the body (joint release) rather than being locked and compressed.

**Method Forum** At the same time, in England, new interpretations were being developed by Alan Herdman and by Dreas Reyneke, Herdman’s first apprentice, now in

his own studio. Reyneke, with some input from osteopath Phil Latey and the author, introduced and encouraged natural spinal alignment, enlarged the concept of ‘the centre’ to include the pelvic floor and introduced specific foot and floor exercises.

During the 1990s many books were published, some repeating the more traditional approach found in *Return to Life* (Pilates & Miller 1945, 1998), with most of them primarily reiterating the Friedman et al. (1980) six principles of: concentration, control, centring, flowing movement, precision and breathing (Friedman et al. 1980, Gallagher & Kryzanowska 1999).

A few writers promoted developments, reinterpreted the original principles, adding “relaxation”, “alignment”, “coordination” and “stamina”, removing “precision” and “control” (Thompson & Robinson 1997). These changes partially reflect the changed perspective of modern society, as well as the influence of a number of Pilates practitioners including the work of Eve Gentry, Dreas Reynekes, as well as the author’s own ideas (Latey 2001b).

The concept of control, with its connotations of overpowering and forcing the body to work, has been

dropped by some. Many now wish to be more in tune with their body, to manage and connect with, not bully it. But other changes, it seems to the author, and new principles such as “coordination”, appears to lack depth of explanation.

## Traditional Pilates

“Traditional” or “Repertory” Pilates, closely follows the exercises set out in *Return to Life* (Pilates & Miller 1945) and *The Pilates Method of Physical and Mental Conditioning* (Friedman & Eisen 1980). The exercises are vigorous with a fast, dynamic rhythm and are difficult to do properly. They rely on the client having a fairly healthy body with from good to high flexibility (Fig. 1).

There are only a few modifications or variations, with set structured levels of difficulty, in this type of work (Gallagher & Kryzanowska 1999). To achieve some of the positions, and range of motion, expected in traditional Pilates exercises, some muscle groups are obliged to work very hard. In fact, the muscle recruitment required for traditional Pilates plainly contradicts Joseph Pilates’ belief in working all the muscles of the body evenly.



**Fig. 1** The single leg circle.

There is also the implicit assumption that all bodies are similar in proportions to Joseph Pilates' own body. Thus, ease of working in the traditional Pilates way is dependent on the client having a similar balance of muscle bulk, bony alignment and stature. But Pilates had a quite short and stocky, mesomorphic, body type. His centre, or powerhouse, while apparently around lower waist (navel) in practice, appears to be the locking or holding of the upper abdominals, hip flexor origins, and glutei muscles (Friedman & Eisen 1980, Gallagher & Kryzanowska 1999). This misses the connection with the lower abdominals and pelvic floor. Proponents of traditional Pilates do tend to have very strong buttock muscles, thighs – particularly hip flexors, and powerful upper body strength, with large wrists. Pilates was, after all, initially a boxer and gymnast. His early floor classes included standing boxing and martial arts warm-ups (Video, Physicalmind Institute 1992).

It is perhaps not surprising that Pilates valued strength and speed of movement and persistent vigorous effort, with his history of childhood illness and exercising as one of the few ways to regain health as a teenager, coupled with his early experiences as an adult. His belief that vigorous exercise with full breathing and a straight spine, light clothing, focus on hygiene, moderate food intake and adequate rest, as the only way to remain fit, healthy and alive, was probably well founded (Pilates & Miller 1945).

### From 'contrology' to modern health care

Pilates integrated many movement methods into his own special style of exercise, which is particularly reminiscent of the early Swedish gymnastics of Per Henrik Ling

(Wide 1906, Latey 2001a,b). His method would have appeal for the very fit, but be extremely difficult for the unwell, the ordinarily unfit or even the moderately inflexible. One of the reasons the method was enthusiastically embraced by dancers was its similarity to dance – in its pursuit of full to extreme range of movement with precision and control, something a dancer is always attempting to achieve.

Pilates' ability to keep the rest of an injured dancer's body strong and flexible, while allowing the injured body part to heal, thus allowing the dancer to return to performing almost as soon as the injury is repaired, remains highly relevant today and can be applied to people of all fitness levels. The Pilates method can be seen to be useful for post-acute rehabilitation in musculoskeletal medicine.

Traditional Pilates exercises primarily work in the sagittal plane, involving a forward and/or back movement. There is little diagonal or spiral work until the more advanced exercises are reached. Modern modifications and the use of introductory pre-Pilates exercises have now increased the range of spiral or diagonal work, particularly in the basic and intermediate programmes. This is extremely important for engaging the oblique abdominal musculature, and for coordinating the ribs with the iliac crests (Fig. 2).

Pilates was very hands-on, guiding clients' bodies physically as well as verbally. His use of touch, by vigorous hand-given cues to assist a client to move correctly, was a very important part of his work at a time when touching a client's body was relatively a taboo (except in the dance world). This was not to change until the late 1950s. The use of touch continues to be an important teaching tool in a Pilates studio (Fig. 3), though the manner is less forceful. Touch can improve muscle engagement, awareness and relaxation.

Despite the rigidity of the original programme, Pilates did suggest some modifications from time to time, such as repeating during the day exercises that focused on areas of the body that needed work (Pilates & Miller 1945), and apparently modified and developed specific exercises for certain clients. In *Return to Life*, however, he advised that one must always do "The Hundred", a particularly arduous exercise, before attempting anything else. It must be emphasised, however, that this exercise is extremely dangerous for someone new to the method and, even under supervision, can result in severe injury. Pilates' emphasis on quality not quantity was not always adhered to by the profession. While Pilates thought a few well-done movements are most effective, some studios in the 1980s were insisting on

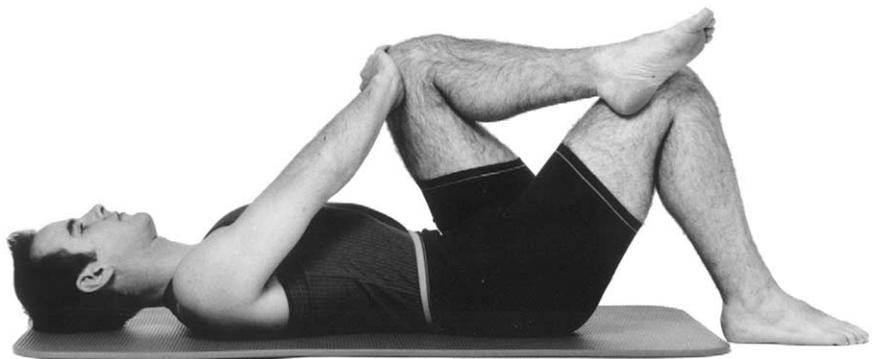


Fig. 2 Diagonal connections assisted with knee press.



**Fig. 3** Hands-on assistance of client.

doing 20 or more repetitions of everything!

Even up until the early 1980s Pilates studios in the UK primarily attracted dancers as clients, but gradually members of the public were being recommended to the studios, particularly by osteopaths. Actors, musicians and singers, particularly, found the method useful. In the 1990s Pilates began to be widely promoted to the general public for fitness, and as a safe alternative to aerobic and weight work for clients who had injured themselves (Latey 2001b).

### **Modern Pilates fundamentals**

Modern Pilates uses the fundamentals of Joseph Pilates' work, philosophy and exercises with modifications that make it appropriate for those of any age, for the unwell, during pregnancy and after trauma as well as for the very fit elite athlete or dancer. The author's work has further expanded the Pilates fundamentals, and redefined them – placing them firmly in the new century (Latey 2001a,b).

Beginning with Joseph Pilates' original words and ideas, from *Your Health* (Pilates 1934, 1998) and *Return to Life* (Pilates & Miller 1945, 1998), a more modern set of fundamentals will be presented below, which have arisen from a reinterpretation of his primary, essential ideas:

“What is balance of body and mind? It is the conscious control of all muscular movements of the body. It is the correct utilisation and application of the leverage principles afforded by the bones comprising the skeletal framework of the body, a complete knowledge of the mechanism of the body, and a full understanding of the principles of the equilibrium and gravity as applied to the movements of the body in motion, at rest and sleep..‘Contrology’,” (Pilates 1934, p. 20).

### **Updated principles of the Pilates method**

#### **Concentration**

The first principle of “conscious” control of the body, requires thought and focused attention.

Pilates states, “Concentrate on the correct movements EACH TIME YOU EXERCISE, lest you do them improperly” (Pilates & Miller 1945, original emphasis).

Concentrating on what you are going to do, and connecting the mind and body, means that we have to tune into our bodily sensory systems. We concentrate and focus our thoughts, to bring our attention inwards, to be able to recognise accurately our bodily sensation.

To achieve conscious control, we need a heightened sense of awareness of the body, making connections thoughtfully, to bring knowledge and understanding to what our body is doing – or not doing, Thinking about what we do, while we are doing. But, what should we concentrate on?

#### **Awareness**

“IDEALLY, OUR MUSCLES SHOULD OBEY OUR WILL REASONABLY, OUR WILL SHOULD NOT BE DOMINATED BY THE REFLEX ACTIONS OF OUR MUSCLES”. (Pilates & Miller 1945, p. 6, original emphasis).

To not to be dominated by our unthinking reflex actions we need to be aware of our body, to listen to the messages sent from the body to the brain. We need to sense and interpret the flow of information from our body, with knowledge and understanding to look after ourselves well. The first step is concentrating on improving our awareness of those components that make up ourselves, thinking, feeling and consciously using our muscles. Awareness of the sensations and messages the muscles, joints and bones helps to focus concentration. Awareness of the body also assists in reducing overwork, strain and tension. We need awareness of our body, particularly the muscular sensations, so as to direct mental and physical efforts efficiently.

## Alignment

‘NOT MIND OR BODY, BUT MIND AND BODY’ (Pilates 1934, p. 24, original emphasis).

Progressing from connecting the mind’s awareness of the body (and itself), Pilates’ system was based on ‘complete knowledge of the mechanism[s] of the body’ (Pilates 1934). He expected his clients to acquire a full understanding of their internal sense of equilibrium and gravity through movement. A good Pilates instructor needs to have a very thorough knowledge of the mechanisms of the body. To apply “the leverage principles afforded by the skeletal system”, some understanding of the “carriage of the body” (the body’s placement in space, or postural alignment) is needed (Pilates 1934).

Understanding one’s individual optimal postural alignment (neutral posture) will allow economy of movement, a natural flow of compensatory patterns, so that no muscle is overworked or misused, without aiming for perfect symmetry.

Alignment is based on the interplay of the structure and function of our body. The arrangement or configuration of bones, joints and muscles has a genetic, developmental and most importantly, emotional and functional basis. Our body’s alignment is highly dependent on our deeper postural muscles. So by utilising the various postural models that have developed over the last seventy years from Florence Kendall (Kendall et al. 1949), Mabel Todd, Ida Rolf, Deane Juhan (all in Franklin 1996), Philip Latey (Latey 1979, 1996) and Myers (1997, 2001), the bodies alignment can be understood and improved. So in practicing Pilates it is necessary to ensure that the deeper muscles work appropriately and functional postural alignment is sustained.

## Breathing

“Before any real benefit can be derived from physical exercises, one must first learn how to breathe properly. Our very life depends on it” (Pilates 1934, p. 42).

“SQUEEZE EVERY ATOM OF AIR FROM YOUR LUNGS UNTIL THEY ARE ALMOST AS FREE OF AIR AS A VACUUM” (Pilates & Miller 1945, original emphasis).

Pilates felt that correct breathing would accomplish more toward attaining and maintaining maximum health standards, than “all other remedies”, that correct breathing would “bring practically every other muscle of the entire system into play”, and that this would allow our posture to be “normal”. Pilates’ ideas on how to breathe were somewhat extreme in today’s terms; however, up until recently traditional Pilates focused primarily on lateral breathing, using specifically the lower ribs with abdomen constantly held in.

Modern Pilates does emphasise breathing with the movements and, most importantly, not holding one’s breath, and refines the breath work. Breathing well, not only enhances circulation, it also allows us to connect with our internal bodily functions. It is the physical interface between the outside and inside of the body, increasing awareness and encouraging proper torso control of the centre, with the use of lower ribs, all abdominal muscles and connecting with the pelvic floor, improving alignment and promoting internal relaxation, without over-bracing or any rigidity. In modern Pilates there is no absolute “right way” to breathe, that must be adhered to at all times. Instead, an awareness of the structure and function of breathing is encouraged, with breath work coordinated with movement to improve well being,

muscular integrity and assisting in sustaining the “Centre”.

## Centring

The center, so named by Friedman and Eisen, though not mentioned directly in Pilates published work, was referred to by Pilates as the powerhouse of the body (Winsor 1999, p. 30, Gallagher & Kryzanowska 1999, p. 12). Up until recently the “centre” referred to the area from the hips to the lower ribs but the modern centre has been redefined. Today, working from the centre means connecting all the muscles that travel from and are enclosed between the pelvic floor to the thoracic diaphragm, not just sucking in and holding the stomach and overusing buttock and hip flexors.

The application of this broader definition of the centre, ensures equalised effort through the torso, and also includes proper shoulder support. With the deep postural muscles of the whole torso retrained first, thus freeing up the movements of the limbs. Centring is pivotal to the practice of Pilates, as it initiates economic and graceful movement and sustains dynamic support of the body’s alignment, with the spine in neutral spine.

## Precision

To improve the quality of movement the ability to be precise is employed, since precision is vital for retraining the body’s postural alignment. Specific muscle control, and much closer mental connection (neuro-muscular patterning) are developed with increased precision. Precise thinking leads to precise movement, thus conserving momentum, with no impact or loss of balance. Fine motor control contributes to separating moving (locomotor) functions from supporting (stabilising) functions through

natural alignment – turning on the little-used muscles, turning down the overused muscles. Attention to detail includes relaxing over-tight muscles. Listening to the feedback from the body’s sensors (proprioceptors) makes the individual aware of what is being done. Precision assists coordination; it is the practical application of focused awareness.

### **Coordination**

Coordination is defined in the Shorter Oxford Dictionary, in terms of physiology, as “the combined action of a number of muscles in the production of certain complex movements”, similarly, Pilates defined contrology as “the complete coordination of body, mind and spirit” (Pilates & Miller 1945, 1998).

Coordination creates the possibility of pleasurable flowing movement and smooth transitions from one action to the next. For the author, it is the unconscious grasp of complex sequentiality in fine muscle action, to create flowing, global, emotionally connected whole body movements. Complex movements require more than just strength in forward and back movements, they require movement ability in all spatial directions. Modern Pilates increases the degree of multiplanar cyclic action, in proper coordination, requiring a lot more work in diagonal and spiral movements, while sustaining equilibrium via the use of the aligned centre.

### **Lengthening**

Lengthening as you work helps with both centring and alignment. To elongate the body as you exercise refines its coordination. Most importantly, the principle of lengthening needs to be refined, moving away from the extremes of “locked joints”, from Pilates early

work, and to include lengthening as a main principle, not only as advice on ways to move as suggested by Friedman and Eisen (1980) did.

Lengthening encourages two important aspects of the Pilates method. First, stretching the muscles to full range requires muscle balance, with the muscles lengthening and working at the same time (eccentric work) with proper support from the centre. Second, as the body lengthens the diagonally opposed supporting muscles have to work well. Most other exercise methods focus on the shortening muscles, and ignore the complex role of the supporting muscles.

‘True flexibility is achieved only when all muscles are uniformly developed’ (Pilates & Miller 1945).

Joseph Pilates’ original exercises were meant to provide flexibility. Certainly, some do improve flexibility if one already has a good range of movement, but for many people good flexibility and the ability to lengthen needs to start in a gentler place. For most untrained bodies, the action of sitting up straight with the legs straight in front is, frankly, impossible. Many modern instructors now incorporate gentle, slow and thoughtful stretches in their classes, as muscles do not lengthen or stretch out by themselves. It is safe to assume that Joseph Pilates’ lack of easier stretches was at least in part due to the fact that he had many dancers as clients (dancers tend to overstretch). The focus on lengthening work was increased when “active resisted movement” exercises were incorporated into the method, thus improving the range of muscle strength and reducing joint compression.

### **Persistence**

Persistence is the final principle. With consistent practice and perseverance (Pilates & Miller 1945),

the Pilates method helps one to acquire comfortable body alignment, good posture and fitness. Persistence here means more than stamina and endurance – it includes the determination to learn and to improve and extend our mental attention span as well as our physical abilities. Omitting this as some have done makes for a fairly mechanistic approach and misses the need to keep on trying mentally and psychologically as well as physically. Persistence alludes to how difficult the method can be, particularly at the beginning. There are no quick fixes, no instant fitness, no short cuts. Without persistence one misses out on the real long-term benefits of the method, as improvements are gradual at first, building up over the years.

These principles, starting with the first and moving down sequentially, all interlock with, and support, each other, and are anchored in Joseph Pilates original published work. Some aspects of modern Pilates may initially appear as reductionist, but the process and interconnectedness, working the mind and body together, builds a wholeness that is more than the sum of its parts.

### **Influences**

Modern Pilates has been influenced by other movement programmes and hands-on treatment modalities such as massage, Rolfing and British Osteopathy. It has also been influenced by improved understanding of anatomy and physiology, new ways of looking and the process of illness, advances in medical treatment, new understandings in stress management and developments in psychology and teaching skills.

The Pilates method has itself influenced many forms of dance, movement education and therapy, as well as rehabilitation methods, and different types of body work. It

has given physiotherapy a new direction, and influenced exercise prescription in many bodywork fields, including sports medicine. Some principles and exercises have been incorporated into modern yoga and dance, fitness training, and coaching methods in some sports.

### Conclusion

Modern Pilates can be for anyone who wants to be able to move with awareness and grace and sustain long-term fitness. Many

musculoskeletal problems can be helped by attending an accredited Pilates studio (Fig. 4), where the instructors can supervise progress and assist in getting the under-working muscles moving, and the over-working muscles resting. Properly supervised modern Pilates is ideal for injury prevention and post-acute rehabilitation.

Practicing the traditional style of the Pilates method without supervision, and using follow-along-at-home books, is only safe if there is already a very good

understanding of how the body works, good flexibility and progress with care and thought, avoiding the more advanced work and having no significant injuries or problems.

The modern Pilates method may be considered as the thoughtful person's exercise method, and this approach is firmly embedded within Joseph Pilates work. Initially, it can seem quite strange to approach movement and exercise via thinking and feeling first, but to efficiently retrain the body out of old postural habits and connect with underused muscles it is better to find out what is actually happening in the body before starting to change it.

While Joseph Pilates original ideas still have relevance today the modified and refined principles of: concentration, awareness, alignment, breathing, centring, precision, coordination, lengthening and persistence, are a gentler way of improving fitness.

Modern Pilates builds towards more dynamic work without pain, injury or muscle over-development by utilising an improved understanding of how the body and mind work; ensuring high-quality safe ethical practice in the method.



Fig. 4 Pilates studio.

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