

TECHNICAL DEVELOPMENT AND ABILITY IN KARATE THE AGE FACTOR

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Whether one looks at a specific Karate action or technique, or completed sequences or actions, alone or with others, the technical aspects of Karate are driven by many physical and psychological factors. Although there are predetermined and unchangeable ageing factors such as our individual genetics, there are also many other driving influences which can be improved and exploited through timely and appropriate training methods, and they can be very age dependent. All Karate participants are affected by their age.

For the most effective technical development and enhancement of abilities in participants it is essential to better understand what is happening to the human body as it ages.

Since there are critical age periods in the development of specific karate behaviours when experience or training has an optimal- effect on development, we must understand the well studied and accepted facets to physical/mental activity and how things change as we age.

Although many only consider chronological age in their considerations, there are several age definitions that should be introduced to reduce confusion when considering age to reduce ambiguity as well as to gain greater insight into the complexities of ageing.

There are several age related definitions that have been established and are commonly accepted. Chronological age is the number of years and days since birth. Skeletal age, the maturity of the skeleton is determined by bone structure factors. Relative age considers differences among those born in the same calendar year. Developmental age refers to the degree of physical, mental, cognitive and emotional maturity. General training age refers to the number of years in training while sampling / trying different sport activities. Sport specific training age refers to the number of years since deciding to specialize mostly in one sport like activity.

Throughout our lives we are influenced by these different aspects of ageing, and perhaps the most interesting and changeable times are those in the earlier years (birth to late twenties) , and those in the later years (approximately 40 years and older). The years in between will not be covered in the following discussion.

It is of interest to note that the earlier years, although different for every individual, show generally much more consistent, orderly, and predictable than the later years. After 40 years of age the patterns and effects of ageing reflect a huge diversity between individuals.

Before delving into these two featured life periods in greater depth it is helpful to touch on the notion of "competition". Some feel that this primarily refers to the pursuit of sport like activity in public venues, and that these competitions serve as the drivers to enhance technical performance and ability, especially for younger participants. What must be remembered is that any pursuit of activities to betterment becomes a competition, for all ages as a very personal and individual commitment to work towards excellence. The competition against oneself is for many Karate participants their preference.

Although substantial global study into sport excellence as related to ageing and elite athleticism has taken place, as practiced through age appropriate specialized training and

competitions, it is useful to reinforce the thought that most participants are not pursuing elite competition. They are interested in life oriented personal competition with themselves, and they can also enjoy the training benefits gained from all the detailed study work, but in a more personal and private way. This certainly still enhances their technical development also.

Through the earlier years of development humans pass through a very significant period of change called puberty. Through this period the following attributes play a key role in technical development. Peak height velocity (PHV) is the maximum rate of increase in strength during growth spurts. The age of maximum increase in strength is called the age at PSV. Peak weight velocity (PWV) is the maximum rate of increase in weight during growth spurt. The age of maximum increase in weight is called the age at PWV.

As children grow and mature passing from childhood to adulthood the huge effect of gender must also be appreciated and respected for optimal technical development. PHV in girls occurs at about 12 years of age. PHV in boys is more intense than in girls and on average occurs about 2 years later. PSV comes about a year after PHV.

For both girls and boys the developmental sequence may occur 2 or more years earlier or later than average. From this age spread it can be seen that chronological age in adolescents from age 10-16 years can represent 4-5 years of difference developmentally.

Age appropriate training development and enhancement of abilities optimizes successful participation, enjoyment and skills. For this age group particularly we must understand there are these differences. Since we are first delving deeper into the earlier years, and since there are so many changes taking place through these years it is helpful to also better understand the concepts of adaptation and trainability.

Adaptation refers to changes in the body as a result of stimulus, and that are influenced strongly by genetics.

Trainability refers to faster adaptation to stimuli and genetics and how developing individuals respond to training stimulus at different stages of growth and maturation. Stimulus must be timed to achieve optimum adaptation with regard to motor skills, muscular, and or aerobic power.

Both adaptation and the five fundamental skills, suppleness (endurance).

and trainability of training and (flexibility), concepts must be applied to performance/ namely, speed, strength, and stamina

SPEED

For boys the first speed training period occurs between the ages of 7 and 9 years and the second period occurs between the ages of 13 and 16. For girls, the first speed training period occurs between the ages of 6 and 8 years and the second window occurs between the ages of 11 and 13 years.

SKILL

The period for optimal skill training for boys is between 9 and 12 years and between 8 and 11 for girls.

SUPPLENESS (FLEXIBILITY)

The optimal period of trainability for suppleness for both genders occurs between the ages of 6 and 10.

STRENGTH

The sensitive period of strength trainability immediately after PHV or at the onset of puberty is 12 to 18 months after PHV.

Timing for girls is while for boys it

STAMINA (ENP, RAR{CE})

The sensitive period of trainability for stamina occurs at the onset of PHV. Aerobic capacity training is recommended before karateka reach PHV. Aerobic power should be introduced progressively after growth rate decelerates.

In summary, of these five sensitive periods of accelerated adaptation to training (5 S's), the periods for both stamina and strength are based on the moving target of the onset of the growth spurt and PHV, whereas speed, skill and suppleness are based on chronological age. These characteristics influence Karate technical development as seen in the following optimum training regimes:

Under 6 years

Learn fundamental movements and link them together into play.

6-9 years old Females 6-8 years old Develop general movement skills using a fun, playful yet structured approach. Developing physical literacy is a focus which includes reading what is going around them in an activity setting and reacting appropriately to those events. Introduce single attacks and static targets, correct breathing, and eye position, Karate ethics and respect, and competition rules

Males 9-12 Females 8-11

Developing fundamental movement and basic Karate skills with priority on the development of motor coordination.

Introduce

distancing and rhythm, technique phases, double attacks, block counter, partial evasion, and kime (focus)

Males 12-16 Females 11-15

Flexibility should be emphasized during the growth spurt (PHV) due to sudden changes in bones, tendons, and ligaments.

Introduction of mobile targeting, multi attacks block counter against more advanced attacks, and competitive strategies and simulations.

Males 16-18 females 15-17

Optimize fitness preparation and further develop through training for fitness, techniques, mental/decision training which is individualized.

karate skills
tactics and

Males 18-24 Females 17-22

Seeking mastery of technical- and tactical- proficiency and pursuing consistency at high speed. Volume and intensity should be tested and optimized.

Males 24 plus Females 22 plus

This period establishes elite participation competitiveness for those pursuing this stream.

and

Karate as a sport activity is a late development competitive sport activity and therefore the peak elite period is during the twenties. Training to elite sport levels will decidedly track the intense age sensitive training guidelines that are followed by all elite sport competitors. Although most Karate participants up to this age are not actively training for elite sport Karate it is important to understand that the developmental changes discussed equally affect those competing at an individual level against themselves and so to optimize technical development the same age respectful guidelines apply. Of course for the less intense participant many of the training aspects such as frequency, intensity, number of repetitions, types of strength training, and so on will be much reduced.

This less intense approach to continuous rigorous training, pursued over a lifetime carries us through the 1n between years (perhaps a more consistent and predictable period) and on to the next life period of interest that will be discussed. From approximately forty years of age onwards we enter the more mature " senior years " .

It is certainly of no surprise that these later Karate training years can consist of very diverse age durations and experiences in different individuals. Some participants continue to train for decades and some are nearly done. It is now timely to look closer at the changes and issues facing this age period and considerations for optimizing technical development regardless of the changes.

Several physical areas degrade with age such as strength, reflexes, endurance, speed, and flexibility. There are also psychological changes which reduce performance such as memory and retention, attitude, and mental agility. Fortunately, several

areas improve with age such as strategy, patience, timing, the ability to relax, technical knowledge, and the benefits from long term continuous physical conditioning.

Older Karateka often carry injuries from earlier years, become injured more easily and heal slower. Smart training that respects these realities must be followed. Continual training at safe intensity level-s is necessary in order to enjoy and benefit into the much later years from Karate-Do.

In fact perhaps the most important aspect of successful training when considering ageing is the necessity to continue training, in a regular, sensible and steady approach. Although

training to excess is not healthy in later years due to potential strain and overuse injuries, we can challenge degradation by seeking optimum effort with appropriate repetition,

aerobic training, and strength training suitable to our individual abilities. Extended training breaks or lapses are more traumatic to the body upon resumption of training. This must therefore be avoided. Injuries and trauma will be reduced and in many cases higher levels of ability will be maintained. With delayed returns to training participants do not always regain their former level of ability when they resume.

When we are seeking out strengths from those aspects that improve with age we discover many of these strengths are more than just compensating for those areas that degrade. A great example is timing and speed. With enhanced timing you have all the time in the world so how do you miss a little speed?

unpredictable timing coupled with experienced body positioning masters greater speed in others, with less effort and much improved effect.

Experienced Karateka are more relaxed and therefore these relaxed muscles are able to react more quickly than in earlier training years. Also, since tension burns energy this improved relaxation serves to conserve more energy. This can help improve stamina.

Clever and

Experience contributes to patience and much less wasted movement. Not only does this help to conserve energy it further enhances early recognition of effective openings created by a moving active opponent which can be exploited.

Continually working on flexibility ensures greater range of motion and lessens injury. As suppleness declines it makes good

sense to select lower targets such as chudan and gedan more often than jodan, particularly with kicking techniques.

Kata j-s such a complete training activity that it should be embraced in later years. When greater diversity and challenge is desired, kata training can be adjusted in a variety of ways to offer opportunities for additional movement and complexity, as well-as to offer a variety of intensity level-s to enhance fitness. By working with the well known, learned kata and trying various changes and adaptations we can introduce both new interest and challenges.

Examples of modifications include performing a kata in mirror image, end to start, trying blind kata, adding kicks before or after each move, and so on.

An additional excellent aspect of kata training for more mature Karateka to pursue involves further research into and practice with the bunkai, the practical applications of the kata.

Another aspect of ageing that can influence technical development and performance relates to physical parts of the body that are critical and yet seem to wear out more obviously. Three very common physical areas of concern which stand out for ageing (and older) Karateka are their knees, lower back, and shoulder rotator cuff area. Time is not particularly kind to these areas and the non recoverable wear and tear over the years coupled with non repairable injuries acquired certainly contribute to the challenges of training as we age. Fortunately, there are actions and behaviours that can be adopted which much improve our continued training and technical advancement.

The first big step is to reconcile our egos in an honest fashion and understand that when you age some adjustments and changes from earlier training habits and expectations are necessary.

Exercises and actions that force that is less than an angle of ninety this strains and hyper extends the j very important for the back.

joints to an angular position degrees should be avoided as point. Core strengthening is

Partner assisted exercises must be undertaken carefully since it is easy to lose control of message us to adjust what we message then we must respect it of possible adjustments, we may intensity, reduce the number actions.

the limits. The body uses pain to are doing. When we receive this and adjust accordingly. As examples need to use a higher stance, change of repetitions, or avoid certain

There can be no discussion of technical- improvement and growth for ageing Karateka without a strong mention of the importance of seka tanden, the deep low core area of the body. Further deep study, training, ,a"O work in this area as we age is like a magic el-1xir to technical development and effectiveness. It probably stands out as the most important and influential driver to Karate betterment that we can consider as we age.

Traditional Shotokan Karate forms a very complete fitness system with aerobic, anaerobic, flexibility, balance, strength and power training for complete health, and for a long life. To best enjoy these benefits we need to maintain a healthy respect for wear down and over use, and keep training with knowledgeable understanding of the many facets of ageing. Armed with this knowledge we can continue to technically improve and enjoy ourselves as we a9□, and also assist those younger Karateka living through their own challenges to technical development as they age.