A highly skilled handspotter has a whole toolbox stocked full of resources to help an unskilled diver bridge the proficiency barrier into the sport and develop movement patterns that enable long-term athlete development. The chapter discusses how to use handspotting skills to mold a diver’s fundamental movement patterns for the proper buildup of momentum in the four somersaulting dive groups. Informed handspotting on poolside guides the athlete through the key positions demonstrated in gold standard performances and provides feedback for error correction. Implications for building the high response accuracy necessary for proficiency and consistency in the sport of diving are addressed by dive group. Trade-offs of the various spotting methods are considered.

1. The purpose of handspotting on poolside is twofold: safety and learning new skills. Quality handspotting fosters a positive perceived competence for beginning divers and enables them to meet the objectives at each stage of learning fundamentals.

2. Quality handspotting depends on the interplay of several factors: the amount of force, direction of force, point of force application, sequence of force application, time of force application.

3. Spotting on poolside enables divers to focus on developing a “feel” for the key positions that relate to balance control and jumping mechanics.

4. Errors during takeoff center on moving one or both feet forward or backward with respect to the starting position, incomplete ankle and toe range of motion, shoulder alignment errors with respect to the balls of the feet, ineffective body shape or failure to maintain the body shape in a static or dynamic spotting situation.

5. Implications for skill building using poolside handspotting center around selecting a handspotting technique that enables learning the proper buildup of momentum to achieve accuracy.

**BUILDING BLOCKS**

**PURPOSE**

Handspotting skills on the mats are valuable tools for coaches at all levels to have in the tool box, but handspotting skills from poolside are especially useful for coaches of beginning divers. A primary purpose of handspotting on poolside centers around the diver’s safety and a secondary purpose is the teaching of new skills. Handspotting dives and somersaults from poolside helps to bridge the proficiency barrier into the sport. It fosters a positive perceived competence for beginning divers by:

- Reducing the likelihood of a collision between the diver and the takeoff or landing surface
- Minimizing the diver’s fear
- Increasing the diver’s confidence
- Assisting divers to assume appropriate body positions and shapes, and
- Assisting divers to generate and direct the proper buildup of momentum during takeoff

Handspotting skills on poolside provide coaches many more options to assist divers to “get the idea,” fully explore movement concepts, discover more efficient ways for the individual diver to coordinate and achieve greater motor control of sport specific movements, combine and refine skills. When learning objectives are met at each stage, learning becomes more purposeful and may also be accelerated.

**HANDSPOTTING METHODOLOGY**

Appropriate handspotting requires that the spotter understands how a skill is done, has knowledge of his/her own abilities and limitations, and has a basic understanding of body mechanics and leverage. On the mats, spotters are able to assist the diver on landing, but on poolside the coach stays dry and the diver often times enters the water unassisted. Handspotting offers the spotter the opportunity to exert various forces during the takeoff phase necessary to the proper and safe performance of the skill. The spotting method selected for forward, back, reverse and inward basic dives and somersaults depends on several interrelated factors: the size and ability level of the diver, the spotting station used, the particular skill being performed, and the ability of the spotter. Skill emphasis may also be a consideration.
MECHANICS OF SPOTTING

The quality of handspotting on poolside is an interplay of the following factors related to force application (George, 1980):

- Amount of force
- Direction of force
- Point of force application
- Sequence of force application
- Time of force application

Amount of force

Force is the pushing or pulling effect the spotter exerts on the diver. It is advisable to provide a reasonable amount of force assist during the initial skill learning. Spotters primarily depend on the large muscles of the legs rather than the smaller back and arm muscles to obtain maximum force (George, 1980).

Spotters may increase the amount of force he/she can generate to assist a diver on poolside by:

- Spreading the feet to increase stability of the base
- Bending at the hips and knees to increase the distance over which force is applied, and
- Maintaining close physical contact with the diver to increase arm-shoulder leverage.

On poolside handspotters only need to spot the takeoff and flight. The total landing force of the skill is absorbed over time as the water slows down the diver.

There are two types of spotting on poolside to simulate skill: static and dynamic. In static spotting, the spotter holds the beginner diver’s weight in the somersaulting position and on comeout before releasing the diver into flight to hold the entry alignment to the water entry (Figure 2.3.2 to 2.7.2). The skill emphasis is the same as the stack mat spotting station: defining position and assuming and holding the proper comeout shape. In dynamic spotting, the athletes support their own body weight and the spotter assists them to direct the force effectively.

Direction of force

Force acts in the direction it is applied. To lift, direct, stabilize or rotate the diver or a combination of objectives, the assistance is generally most effective when initiated from some point underneath the bulk of the diver’s body (George, 1980). A spotter strategically places his/her body to enable the desired direction of force application. Handspotters on mats generally stand on the side of the performer and use one hand to lift and the other to rotate or one hand to lift and rotate and the other to reinforce trunk alignment by adjusting the placement of the shoulders with respect to the balls of the feet and thus influence the trajectory of the skill. Standing on the side also enables the spotter to travel to be in position to spot the landing.

Handspotters on poolside are unable to travel past the edge of the pool deck and often times opt to stand face-to-face on back takeoffs or behind a diver on forward and reverse takeoffs.

Point of application of force

The points of application of force (i.e. spotting landmarks) used in poolside spotting to lift, direct, and rotate include:

- Hips/waist
- Under the shoulders (latissimus dorsi/armpits)
- Back
- Thighs
- Back of the neck with thumbs up (front, back, reverse) thumbs down (inward)
- Upper arms
- Upper portion of sternum (using this spotting landmark has limited application to spotting inward takeoffs from 1-meter springboard); place 2 or 3 fingertips (not the hand) on the lower portion of manubrium at the base of the neck on the sternal angle (of Louis) where manubrium articulates with the body of the sternum (i.e. landmark is about three finger widths down from top of sternum; the accuracy is important to avoid pushing with fingertips against the larynx (voice box) or the NO ZONE below the sternal angle when spotting females).

Points of application affect body motion as well as body shape. Spotters should be aware that choosing a point of application to maximize leverage to lift may also alter the body shape of the performer. Stack mats also provide opportunity to learn how to manage and move body shapes of basic dives without having to deal with point of application issues.

Because the diver is wet, it is more practical to have “hands on” contact with the spotting landmark before the skill begins to minimize slippage during the spotting assist.

Sequence of force application

A spotter possesses only a given amount of available force. As more of this force is used to control the rotational aspects, less force is available to assist in the lifting. Since skills must first be initiated, then executed, the spotting sequence follows accordingly. First spot for height, then for rotation (George, 1980).

On poolside, there are two types of lifts: One handed and two handed. Spotting methods may be considered on the basis of their contribution to the sequence of force application. Two handed lifts provide more height, while one handed lifts utilize the second hand to maintain postural control and rotation.

Time of force application

Handspotting on poolside may be regarded as the lowest platform spotting station. The changes in vertical motion of the diver on platform takeoff by dive group specifically relate to handspotting takeoffs on poolside. For a more in-depth discussion of platform takeoffs by dive group, the reader is referred to Chapter 30 (Miller and Golden pp. 460-467).

Initial weighting. Handspotters first spot to stabilize the diver as he/she rises up on the toes from the starting position. During this initial movement upward, as the heels come off the ground and the ankle and metatarsophalangeal plantarflexion takes place, the CG shifts forward until the line of gravity falls over or even slightly in front of the toes (Figure 1.1 to 1.2).
**SPOTTING EFFICACY**

Coaches use spotting as a resource to correct these common errors:

- Moving one or both feet forward or backward with respect to the starting position
- Incomplete ankle and toe range of movement
- Shoulder alignment errors with respect to the balls of the feet.
- Ineffective body shape or failure to maintain stabilization.

**DEVELOPMENTAL ERRORS INFLUENCED BY SPOTTING EFFICACY**

The ultimate litmus test for the value of a handspotting technique related to long term athlete development is its contribution to developing force production movement patterns that may eventually lead to gold standard performance (i.e. dives that score 9-10 points internationally). Coaches use spotting as a resource to correct these common errors:

- Ineffective body shape or failure to maintain stabilization.
- Shoulder alignment errors with respect to the balls of the feet.
- Incomplete ankle and toe range of movement.
- Moving one or both feet forward or backward with respect to the starting position.

**HANDSPOTTING PROTOCOL ON POOLSIDE**

Basic dives and single somersaults are introduced on poolside to beginners with the same oscillation movement pattern: 1) starting position, 2) move up, 3) move down, 4) move up to last contact before flight. Keeping it simple enables the beginner to focus on developing a “feel” for the key positions associated with gold standard performance. The recommended spotting protocol includes:

1. The diver assumes the starting position.
2. The coach adjusts the alignment to place the diver in a straight line and molds the body shape to increase stability.
3. The coach positions his/her body into a stable position to lift the athlete and places the hands on the spotting landmark(s) appropriate for the technique.
4. The coach assists with balance control as the diver moves up and down. Apply the appropriate force to lift simultaneously with the initiation of the diver’s movement up, and then rotate the diver.

**PRACTICAL APPLICATIONS**

**IMPLICATIONS FOR LONG-TERM DEVELOPMENT**

Handspotters on poolside need to be ever mindful that they are guiding the diver to establish movement patterns that may soon become ingrained. The manner in which the spotter allows the diver to buildup angular momentum during the awareness to discovery stages of learning basic dives and single somersaults may have a bearing on the diver’s long-term tendencies to err. Refined skills that enable long term athlete development accomplish two performance criteria:

1. Maximize vertical jump given the distance and rotation constraints of the skill, and
2. Control upright balance to appropriately delay the shift of the center of gravity, thus avoid premature rotation.

Divers who are allowed to shift the body weight too early and/or dampen the leg push when performing basic dives and somersaults tend to intrain these errors and compromise the development of proficiency and consistency in the long term. Depending on the method used, handspotting may enable the coach to “feel” subtle differences related to critical performance criteria and evaluate what aspect of training needs more attention in the physical preparation plan (Figures 1-4).
FORWARD STANDING TAKE-OFF

1. Gold standard key positions:

Figure captions 1-8:
1.1.1. Start 1.2.1. Up 1.3.1. Down 1.4.1. Up-last contact positions vary by number of somersaults

Weighting/unweighting:
1. Initial weighting Begins to move up
2. Unweighting Slows upward motion, begins to move down
3. Major Weighting Slowing of downward movement and start of final upward movement

2. Dynamic: 101c hip spot

3. Dynamic: 102c hip spot

Figure 1. Poolside handspotting methods and key positions for forward 101c and 102c take-off and flight.
FORWARD FLIGHT

1.5.1. Closure 1.6.1. Peak 1.7.1. Comeout 1.8.1. Entry line up

1.5.2 1.6.2 1.7.2 1.8.2

1.5.3 1.6.3 1.7.3 1.8.3
1. Gold standard key positions:

2.1.1. Start

2.2.1. Up

2.3.1. Down

2.4.1. Up-last contact positions vary by number of somersaults

Weighting/unweighting:

1. Initial weighting

Begins to move up

2. Unweighting

Slows upward motion, begins to move down

3. Major Weighting

Slowing of downward movement and start of final upward movement

Figure captions 1-8:

1. Initial weighting

Begins to move up

2. Unweighting

Slows upward motion, begins to move down

3. Major Weighting

Slowing of downward movement and start of final upward movement

2. Static:

201c upper back and back of thighs

3. Dynamic:

201c shoulder spot

4. Dynamic:

202c hip spot

Figure 2. Poolside handspotting methods and key positions for back 201c and 202c takeoff and flight.
BACK FLIGHT

2.5.1. Closure  2.6.1. Peak  2.7.1. Comeout  2.8.1. Entry line up

2.5.2  2.6.2  2.7.2  2.8.2

2.5.3  2.6.3  2.7.3  2.8.3

2.5.4  2.6.4  2.7.4  2.8.4
1. Gold standard key position:

Figure captions 1-8:

3.1.1. Start
3.2.1. Up
3.3.1. Down
3.4.1. Up-last contact positions vary by number of somersaults

Weighting/unweighting:

1. Initial weighting
   Begins to move up
2. Unweighting
   Slows upward motion, begins to move down
3. Major Weighting
   Slowing of downward movement and start of final upward movement

2. Dynamic:
   301c back of neck (thumb up) and thighs

3. Dynamic:
   302c back of neck (thumb up) and thighs

4. Dynamic:
   302c hip spot

Figure 3. Poolside handspotting techniques and key positions for reverse 301c and 302c takeoff and flight.

610 USA Diving Reference Manual (Professional Preparation and Development)
REVERSE FLIGHT

3.5.1. Closure  
3.6.1. Peak  
3.7.1. Comeout  
3.8.1. Entry line up

3.5.2  
3.6.2  
3.7.2  
3.8.2

3.5.3  
3.6.3  
3.7.3  
3.8.3

3.5.4  
3.6.4  
3.7.4  
3.8.4
INWARD TAKE-OFF

1. Gold standard key positions:

   4.1.1. Start
   4.2.1. Up
   4.3.1. Down
   4.4.1. Up-last contact positions vary by number of somersaults

2. Dynamic:
   401c back of neck (thumb down) and front of hip

   4.1.2
   4.2.2
   4.3.2
   4.4.2

3. Dynamic:
   402c back of neck (thumb down) and front of hip

   4.1.3
   4.2.3
   4.3.3
   4.4.3

4. Dynamic:
   402c Hip spot

   4.1.4
   4.2.4
   4.3.4
   4.4.4

Table 4. Poolside handspotting techniques and key positions for inward 401c and 402c takeoff and flight.

612  USA Diving Reference Manual (Professional Preparation and Development)
INWARD FLIGHT

4.5.1. Closure

4.6.1. Peak

4.7.1. Comeout

4.8.1. Entry line up

4.5.2

4.6.2

4.7.2

4.8.2

4.5.3

4.6.3

4.7.3

4.8.3

4.5.4

4.6.4

4.7.4

4.8.4
ACCURACY REQUIREMENT

Takeoffs on poolside are closed tasks (i.e., motor skills performed in a stable environment where the diver determines when to begin the action). A closed movement skill or fundamental movement pattern for the build up of momentum specific to each dive group demands rigidity of performance (i.e. a very high response accuracy requirement). A closed task depends on kinesthetic rather than visual and auditory feedback. Handspotting provides proprioceptive feedback to the spotter and the diver that may be used to develop and refine accuracy. Skill building is facilitated when the spotter understands the parameters for the proper buildup of momentum and realizes the benefits of the spotting intervention for the given dive or single somersault.

Forward group

On forward dives and single somersaults many unskilled athletes shift the weight forward much earlier and farther than needed reducing the vertical velocity at last contact. To help the diver maintain balance longer, the spotter may consider applying a force on the front of the upper arm to keep the diver upright longer during takeoff (see Figure 5).

Figure 5. Hip (a) and upper arms (b) spotting techniques on a forward dive. The upper arm spot may be used to assist the diver to delay the shift of the body weight over the water.

Back group

To avoid cutting in on back somersaults, the diver should emphasize a complete push downward and into the takeoff surface obtaining the necessary back somersaulting angular momentum as the result of a slight backward lean i.e. slanted jump (Figure 6).

Figure 6. Shoulder spotting technique develops alignment accuracy on the back (and reverse) slanted jump progression.

On back dive takeoffs, guiding the shoulders into a slanted jump with the shoulders slightly behind the feet and the ankles, with knees and hips extended before the diver leaves the takeoff surface sets the diver up to efficiently use the vertical reaction force component to perform the skill (Figure 7).

Reverse group

The proper build up of momentum for the standing reverse dive and somersault takeoffs on poolside is counter intuitive for many divers and coaches. In the worst case scenario divers who have difficulty making the dive may try to compensate by beginning rotation in the backwards direction early in the unweighting phase. Divers fearful of hitting the takeoff surface tend to make the opposite error by beginning forward rotation early in the unweighting phase of takeoff. Without benefit of appropriate spotting, both errors may lead to the diver striking his/her head on the takeoff surface.

On reverse dives, the with-it spotter is mindful of the importance of alignment at the beginning of the major weighting phase (lowest position) as it relates to the proper buildup of momentum. With accurate placement of the shoulders over the balls of the feet in the lowest position, the vertical component of the reaction force passes briefly in front of the center of gravity thus promoting rotation in the reverse direction in addition to the horizontal component of reaction force (Figure 8).

Figure 7. Shoulder spotting technique to develop alignment accuracy on the back slanted jump progression.

Figure 8. Lowest position alignment for proper build up of momentum on a reverse takeoff (Chapter 34, Miller and Golden, p 514).

Learning the movement pattern indicative of proper buildup of momentum from poolside takes repetition and patience, but the long-term benefits related to safe clearance and performance over a career are worth the perseverance early in an athlete’s developmental period. Well performed dives in the reverse group tend to score higher than well performed dives in other groups. Before moving on from jumps to dives on poolside, a high response accuracy should be established.

The back of the neck and front of the hip spotting method may help the beginning diver “get the idea” how to develop rotation to perform a reverse dive, but favors rotation over precision.
After internalizing the Newton’s third law of motion, divers gain more confidence to proceed to the next step. Spotting under the shoulder joint on an inward dive on poolside is not the most biomechanically effective inward spotting technique, however it can be useful to assist a beginning diver to “get the idea” of direction of push to perform an inward takeoff to a head-first entry. It is also useful for smaller spotters to assist athletes larger than themselves. The spotter may easily correct for the beginners balance errors by pushing the shoulders away from the poolside to avoid collision with the takeoff surface (Figure 11).

The hip spotting method with both of the spotter’s hands lifting from an application point below the CG, enables the spotter to provide an effective “boost” on the lift and to direct the hips fore and aft at last contact, a movement essential to safe clearance. It does not provide for control of the shoulder alignment over the balls of the feet that precedes the hip thrust. It relies on the athlete to maintain alignment.

A high response accuracy is developed using the shoulder alignment method (Figure 9) because the spotter can feel shoulder alignment errors in real time and keep the diver aligned. To perform a back squat perfectly, the end of the bar should track down and up in a straight line when viewed from a side profile perspective. In the shoulder alignment spotting method the spotter functions much like the fixed bar squat rack. Every repetition down and up is performed accurately. PERFECT PRACTICE MAKES PERFECT! The exacting accuracy afforded by this method, with its emphasis on a maximal vertical jump, enables a skilled spotter to handspot a beginner’s first reverse dive from the 3- and 5-meter heights and achieve performance accuracy.

Inward group

Sometimes beginners move unpredictably, especially when first introduced to a new skill. Some do not push strong enough to move away from the take-surface in flight. Some even get confused about which direction forward or back they are rotating. The shoulder spotting method enables the coach to securely stabilize the upper body, allowing the diver to explore directing force toward the pool edge through the feet in order to experience the equal and opposite ground reaction away from the pool edge (Figure 10).

After the coach is confident that the diver conceptually understands movement in the inward direction and how to push to get away from the poolside to perform an inward dive, the skill emphasis changes to teaching the high performance aspects of the inward dive. Regardless of whether the hip spotting or the back of the neck and front of the hip spotting method is used, the spotter should be mindful of the body alignment at the lowest position with the CG ahead of the vertical component of reaction force that enables both the vertical and horizontal components of reaction to contribute to inward rotation (Figure 12).
The spotter should be careful to spot in a manner that does not interfere with the diver’s ability to pass through the position demonstrated in Figure 12 with the elbows in line with or in front of the ears and hands behind the head that places the center of gravity ahead of the vertical component of reaction force at the beginning of the major weighting phase of takeoff when the downward motion begins to slow and the upward motion begins.

1-METER

The dynamic handspotting skills presented in this chapter that are spotted from behind the diver or face-to-face with the diver may also be used on 1-meter springboard. The spotter needs to jump up a little to take his/her weight off the board to facilitate recoil (Figure 13). The upper sternum spotting method may also be used to help wean the diver from spotting assistance. The spotter stands at arms length away facing the diver to avoid being hit in the face by the diver’s hands and arms. Place three fingertips on the lower portion of the manubrium at the base of the neck on the sternal angle where the manubrium articulates with the body of the sternum about three finger widths down from the top of the sternum. Avoid pushing on the larynx (voice box) and on females avoid the NO ZONE below the sternal angle. The coach can easily use the fingertips to push the upper body away from the board, if needed for safe clearance.

REFERENCES


ACKNOWLEDGMENT

The author acknowledges USA Diving Training Center staff, John Wingfield and Alik Sarkisian and Indianapolis Starz staff Sean McCarthy for expanding the body of knowledge related to poolside handspotting techniques for divers.

Figure 13. Sternum spotting method to wean divers away from a spotting assist.

FINAL COMMENT

Unskilled divers generally lack the skill to replicate the movement accurately enough to be in position at the right time over multiple trials. Most unskilled divers lack the confidence to push strongly in those trials when they actually find themselves in the proper position with the shoulders over the balls of the feet. Their survival instinct tells them not to push as strongly as they are capable of or to delay pushing. Many divers fail to make the “discovery” of the proper buildup of momentum on their own. Handspotting is an intervention that can guide the diver to get in the key positions and provide the confidence to experience that effortless feeling that proper buildup of momentum affords. Divers who have developed trust in their spotter feel safe to try to execute the movement pattern for maximal benefit knowing that if they make a mistake, the spotter will make every effort to adjust to enable safe clearance and landing.

A skilled spotter provides a safe learning environment that teaches an athlete many layers of personal growth. Just as important as learning how to dive and somersault safely and effectively is learning to take responsibility for an outcome, working in concert with another to exert a maximal and consistent effort, persevering to meet a learning objective, learning to compartmentalize fear, learning to mitigate risk and learning how and who to trust.

There are many aspects of performance to be learned in a developmental period. Coaches may maximize the instructional value for beginners to facilitate long term athlete development by using the poolside handspotting techniques best suited to the spotting situation and the skill emphasis.
CHAPTER 41
TUMBLING BASICS
Reprinted from USA Trampoline and Tumbling (USATT), Coaching the Fundamentals (1996)
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This chapter presents nine basic tumbling skills that have application in diving, hurdle, takeoff, flight, somersaulting forward and backward, and entry. Most of these skills involve inverted support, and thus prepare the wrist to support the body’s weight in a handstand on platform. The spotting techniques discussion describe the placement of the spotter to apply support and rotation specific to each skill. Progressions, variations and error corrections are the practical applications included in the chapter.

KEY CONCEPTS

1. On a forward roll, the instructor stands to the side of the athlete and places one hand on the diver’s stomach and the other on the back of the neck to assist the diver to roll over properly.

2. On a backward roll, the instructor stands to the side of the athlete with one hand on the athlete’s back to control the speed of the backward falling action. As the athlete rolls over, the instructor lifts the athlete’s hips upward to relieve pressure on the head or neck to assist the diver to reach the squat position.

3. On the handstand, the instructor stands to the front and side of the athlete as the movement into the handstand begins. As the front leg pushes off the floor, the spotter grasps the leg above the knee to lift the athlete to the handstand position. The spotter’s other hand is place on the small of the athlete’s back to provide balance and support. The spotter should be prepared to support the athlete in case of a collapse.

4. On the cartwheel, the spotter stands to the side of the athlete facing the athlete’s back. As the athlete begins the movement, the spotter reaches in to grasp the waist of the athlete. If the athlete is leading with the right hand or foot, the spotter will reach in first with the left hand to make contact with the athlete’s right hip. As the movement continues, the spotter reaches in for the athlete’s left hip with the right hand. This procedure enables the spotter to support the athlete during the inverted handstand phase of the cartwheel. The spotting technique is reversed to assist with the opposite side cartwheel.

5. On the round-off, it may be helpful to spot the movement when an athlete is having problems completing the last quarter turn and squaring the landing. The spotting technique for the cartwheel may be used for the round-off.

6. On the back bend, the spotter stands to the side of the athlete with hands grasping the athlete just below the rib cage to provide support as the athlete lowers to the floor.

7. On the forward handspring, may be spotted in many ways. The most commonly used technique is for the spotter to stand to the side of the athlete at the onset. As the athlete inverts, the spotter will reach in with the hand nearest the athlete and grab a the shoulder or upper arms for support. The far hand will then reach in to support the athlete’s back and provide support to reach the proper landing position.

8. On a back handspring, the spotter positions him/herself to the side of the athlete with the near hand resting behind the athlete’s thigh and the far hand placed on the athlete’s lower back. As the athlete jumps backward into and inverted position the spotter supports the athlete and helps to lift the athlete’s legs over the head.

BUILDING BLOCKS

This chapter provides a description, progressions, spotting, variations and error corrections for nine fundamental tumbling skills:

- Forward roll
- Backward roll
- Handstand

- Cartwheel
- Power hurdle
- Round-off
- Limbering skills: Back bend
- Forward Handspring
- Back Handspring
Description  (Figure 1)

The forward roll is initiated from a straight standing position with the arms stretched upward. The athlete begins by leaning forward and simultaneously flexing at the waist and knees. The athlete will reach toward the mat with the hands. The head is positioned between the arms with the chin slightly down. The hips lift up/forward as the athlete pushes from the mat with the feet to initiate the roll. The athlete will then tuck their head under and roll their body over. During this phase the athlete should be instructed to sequentially feel the mat with their shoulders, back, hips and then feet. Instructing the athlete to bring the knees into a tighter tuck position as they pass through vertical will help to increase the speed of the roll. As the roll is completed the athlete will reach up and forward to arrive in the straight standing position.

Spotting

Instructors should stand to the side of the athlete and place one hand on their stomach, the other on the back of their neck to ensure the athlete will roll over properly without risking injury to head or neck.

Comments

The forward roll is essential for the development of more difficult skills such as the forward somersault. The forward roll is also an important safety element used by higher level athletes when falling forward with too much rotation.

Variations

- Piked forward roll
- Straddle forward roll
- Forward roll to stepout
- Handstand forward roll  (Figure 2)

Table 1. Common errors and corrections on the forward roll.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using hands to stand up</td>
<td>Lack of abdominal strength; lack of continuity</td>
<td>Increase stomach strength; rolls down incline</td>
</tr>
<tr>
<td>Lack of continuity</td>
<td>Lack of forward lean on takeoff; weak body positions during roll</td>
<td>Emphasize takeoff position; continue drilling the rock and roll progression</td>
</tr>
<tr>
<td>Athlete cannot roll over</td>
<td>Insufficient hip lift or push from legs</td>
<td>Perform rolls down incline; instructor will assist with hip lift</td>
</tr>
</tbody>
</table>

Figure 1. Forward roll.

Figure 2. Handstand forward roll.
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Description  (Figure 3)

The athlete begins in a straight standing position with arms overhead. The athlete will flex at the knees and waist to initiate backward movement. The athlete will then lean backward and increase squat position with continuous movement toward the mat. Contact with the mat is made first with the buttocks, followed by the hips, then back. The arms remain parallel and bent at the elbow during this phase. The palms of the hands are turned upward in preparation for contact with the mat. The athlete will continue to roll backward onto the shoulders and neck. As the hands make contact with the mat the athlete should forcefully push him/herself over and arrive once again in a squat stand. The athlete will then return to the straight standing position.

Progressions
1. Athlete lies on back and rolls backward and forward.
2. Backward rolls down incline mat.

Spotting
The instructor will stand to the side of the athlete with one hand on the athlete’s back to control the speed of the backward falling action. As the athlete rolls over, the instructor will lift the athlete’s hips upward to relieve any pressure on the head or neck and assure the athlete arrives safely in the squat position.

Comments
The backward roll is the first progression for the more advanced backward somersault. It is also an essential safety skill for the advanced athlete who is falling backward with too much momentum.

Variations
• Backward straddle roll
• Backward pike roll
• Back extension roll  (Figure 4)

Table 2. Common errors and corrections on the backward roll.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete reaches backward for mat</td>
<td>Usually afraid of falling backward</td>
<td>Spot initial backward movement; reinforce backward rolling action</td>
</tr>
<tr>
<td>Athlete gets stuck in middle of roll or rolls sideways</td>
<td>Insufficient upper body strength or improper timing</td>
<td>Continue to spot athlete by lifting hips over top; increase upper body strength exercises</td>
</tr>
<tr>
<td>Athlete lands on knees instead of squat stand</td>
<td>Lack of upper body strength</td>
<td>Increase upper body strength training</td>
</tr>
</tbody>
</table>

Figure 3. Backward roll.

Figure 4. Back roll extension.
THE HANDSTAND

Figure 5. The handstand.

**Description** (Figure 5)

From a straight standing position with the arms extended overhead, the athlete will lift one leg upward and step onto the foot finishing in a lunge position. The weight is transferred to the front leg as the rear leg lifting upward through a lever position. The athlete’s arms should be straight with shoulder girdle completely extended. The hands are shoulder width apart with fingers facing forward. As the hands reach forward to make contact with the mat, the rear leg continues lifting upward. Upon contact, the athlete will push from the front leg and bring the feet together in an inverted straight line. Once a strong handstand position is attained and held, the athlete will split the legs and step back down through a lever position. The athlete will return to the lunge position upon completion of the skill.

**Progressions**

1. The athlete should develop the proper handstand position by having the instructor shape the athlete’s body while lying on a mat.
2. The instructor may have the athlete hang from a bar and shape the athlete’s body into the desired position.
3. The athlete should be able to perform small “baby” handstands. These movements, also known as “donkey kicks,” are performed from a lunge position. The hands are placed forward on the mat. The athlete then kicks legs upward trying to bring them together while remaining supported on his/her hands.
4. The instructor should help the athlete cartwheel up to a handstand against a wall, with athlete’s stomach facing in.

**Spotting**

The instructor will stand to the front and side of the athlete as the movement begins. As the front leg pushes off the floor the spotter will grasp the leg above the knee to help lift the athlete to the handstand position. The spotter’s other hand is placed on the small of the athlete’s back to provide balance and support. It is important for the spotter to be prepared to support the athlete in case of a collapse.

**Comments**

The handstand is the basis for almost all tumbling and gymnastic skills. Attention must be given to developing the proper body shape so it may be applied to the more difficult elements later on. The handstand to forward roll and the back extension roll are important skills for the beginner. Developing the proper handstand will enable the beginner to achieve success with these elements very quickly. A proper handstand is always done with the body in a slightly hollowed, straight position. This position allows the athlete to balance with the wrists and fingers instead of using the whole body.

**Variations**

- Split
- Straddle
- Handstand snap-up
- Handstand forward roll
- Back extension roll
- Handstand pirouette

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collapsing in handstand</td>
<td>Insufficient strength; depressed shoulder girdle or bent arms</td>
<td>Strength exercises; correct body shape on takeoff and during support phase; lock elbows</td>
</tr>
<tr>
<td>Arch in back</td>
<td>Insufficient strength</td>
<td>Train hollow hold on floor</td>
</tr>
<tr>
<td>Balance takes place by using the entire body instead of localizing balance at</td>
<td>Incorrect shape of handstand; weight not placed over base of support</td>
<td>Eliminate body segmentation; discuss and practice balancing using only wrists and fingers</td>
</tr>
</tbody>
</table>

Table 3. Common errors and corrections on the handstand.
**Description**  (Figure 6)

The athlete begins by assuming a straight standing sideways position with arms raised overhead. The athlete will then lift the forward leg upward and step onto the foot while transferring the weight from rear leg to the front leg. As the weight is transferred the rear leg lifts upward and the hands begin reaching down toward the mat. As the hands make contact, the athlete pushes off the mat with the front leg while continuing to lift the rear leg. The body will continue rotating into an inverted straddle position. During this phase the athlete should be instructed to keep his/her head in a neutral position. The athlete will continue this “wheeling” movement, eventually pushing from the shoulders and landing once again in a straight standing position. When executed correctly, the rhythm of the movement is hand, hand, foot, foot.

**Progressions**

1. Small “baby” cartwheels over a line will be helpful in developing proper rhythm and timing.
2. A strong handstand is essential for proper execution of the cartwheel. This lead up will enhance the athlete’s ability to support weight on the hands.
3. Cartwheeling upward to a side handstand against a matted wall will help the athlete learn how to achieve the vertical position. Coaches should always spot this skill at the beginner level.

**Spotting**

Spotter stands to side of the athlete facing the athlete’s back. As the athlete begins the movement the spotter will reach in to grasp the waist of the athlete. If the athlete is leading with the right hand or foot, the spotter will reach in first with the left hand to make contact with the athlete’s right hip. As the movement continues the spotter will reach in for the athlete’s left hip with the right hand. This will allow the spotter to provide the athlete with support during the inverted handstand phase. This spotting technique is reversed when assisting with the opposite side cartwheel.

**Comments**

The cartwheel should always be taught to both the right and left side. The cartwheel should also be executed with both a forward and a sideward takeoff. Once the cartwheel from a stand is correctly mastered then a run and hurdle step should be taught to proceed the movement in preparation for the next integral skill; the roundoff.

**Variations**

- Lunge cartwheel (athlete begins and finishes in lunge)
- Side cartwheel (athlete rotates only around medial axis)
- Near and far arm one-handed cartwheels

---

**Table 4. Common errors and corrections on the cartwheel.**

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legs not kicking through the vertical position</td>
<td>Usually has not mastered a correct handstand</td>
<td>Continued handstand work; cartwheel to side handstand</td>
</tr>
<tr>
<td>Collapsing during support phase</td>
<td>Insufficient strength; bent elbows prior to support phase</td>
<td>More handstand work; increase upper body strength</td>
</tr>
<tr>
<td>Athlete lands in squat position</td>
<td>Poor rhythm; lack of lateral flexibility in hips</td>
<td>Emphasize hand/hand-foot/foot rhythm; increase flexibility training</td>
</tr>
<tr>
<td>Athlete drags hand on floor</td>
<td>Ususally a weak kick of the back leg</td>
<td>Emphasize hand/hand-foot/foot rhythm; train the kick of the back leg from a lunge</td>
</tr>
</tbody>
</table>
Description (Figure 7)
In the power hurdle, also called “push away,” the athlete starts standing up straight with a flat back. The athlete bends at the knees and hips keeping the shoulders over the feet. The arms swing slightly backward while maintaining a straight back. The heels stay flat on the floor. The athlete explosively jumps upward and forward to a stretched position in the air (arms and legs right, toes pointed and shoulders extended) and lands on one foot with the other liftee in front bent at the knee at a 90 degree angle. The athlete falls forward to step onto the front foot. The back hip is still open. The athlete brushes the back foot off the ground passing through a lver positon as he/she begins the planned tumbling skill.

Progressions
1. The athlete should master each of the steps in the power hurdle before combining them. Each step can be performed as a static hold (5-10 seconds) so the athlete can perform each position with the correct body shape.
2. Performing a jump to one foot up onto a mat then stepping to a lunge will help to strengthen the jump of the power hurdle.

Spotting
Spotting of this skill should focus on putting the athlete into the correct shapes. Positioning the arms and legs and ensuring tight muscles is important for mastery of this skill.

Comments
The power hurdle is a useful tool for teaching the athlete to create his/her own power rather than relying only on the run up.

Variations
• Step hurdle
• Running before the hurdle

Table 5. Common errors and corrections on the power hurdle.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete steps sideways during hurdle</td>
<td>Step onto the front foot is too short</td>
<td>Discuss the need for a large step; practice stepping over a mat or line</td>
</tr>
<tr>
<td>Athlete does not create enough power to initiate next skill</td>
<td>Usually the jump is not high or long enough</td>
<td>Strength training to increase the athlete’s vertical jump and broad jump</td>
</tr>
</tbody>
</table>
Description  (Figure 8)

The athlete begins facing forward in the straight standing position. The athlete’s arms should be stretched overhead as high as possible. The athlete will initiate the skill by leaning forward and stepping into a lunge position. The athlete will transfer weight onto the front leg while simultaneously kicking the rear leg back upwards and pushing off the front leg. The hands will reach for the mat in a fashion similar to that of the cartwheel. As the inversion takes place, the athlete will make a 1/4 turn of the torso to a cartwheel position. During the entire skill the head and arms stay in alignment. During the inverted contact phase, the legs will begin to come together. As the legs pull together in a side handstand, the athlete will make another 1/4 turn and snap the legs toward the mat. The athlete will push from the shoulders in order to snap the chest up as the legs snap down for the landing. The athlete will complete the movement by landing in a straight standing position with arms stretched upward overhead. Slight, rapid flexion and extension in the knee and ankle joints upon landing will allow the athlete to land and rebound upward into a stretch jump upon completion of the skill.

Spotting

Spotting the roundoff is rarely necessary if all of the lead ups are correctly taught and the athlete has mastered a strong cartwheel. Sometimes it is helpful to spot the movement when an athlete is having problems completing the last quarter turn and squaring the landing. The spotting technique for the cartwheel can be used for the roundoff.

Comments

The roundoff is considered by many to be one of the most important skills in power tumbling. The reason is the roundoff changes the athlete’s momentum from forward to backward. This skill or an aerial variation of this skill called “the barani” is seen in every power tumbling pass. An effective roundoff will ensure no speed or rhythm is lost at the beginning of the athlete’s routine.

Variation

- One-handed roundoff

Table 6. Common errors and corrections on the roundoff.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundoff not through vertical</td>
<td>Poor lead ups; improper cartwheel technique</td>
<td>Drill cartwheel and side handstands</td>
</tr>
<tr>
<td>Drags hand on turn</td>
<td>Insufficient snap-up of chest; improper kick into cartwheel</td>
<td>Handstand snap-up; fast, strong cartwheel work</td>
</tr>
<tr>
<td>Lands in squat</td>
<td>Insufficient push from shoulders; chest snaps up too slowly</td>
<td>Handstand snap-up</td>
</tr>
</tbody>
</table>
**Description** (Figure 9)

From a straight standing position with arms overhead and feet placed about shoulder width apart, the athlete will lower backward into a bridge position. This is accomplished by having the athlete extend the hips up and forward as the upper body, led by the arms, reaches down and backward toward the mat. During the entire movement, the athlete should be instructed to keep arms straight and head in alignment with arms. Once the bridge position has been attained, the athlete will rock forward and simultaneously lift the upper body off the mat. As the athlete pushes off the mat with the hands, strength from the legs, buttocks, and stomach will help the athlete arrive back in the straight standing position.

**Progressions**

1. Push up to bridge position
2. Backbend going uphill on wedge

**Spotting**

The spotter stands to the side of the athlete with hands grasping the athlete just below the rib cage. This will provide complete support as the athlete lowers to the floor. The spotter will be able to provide the extra strength needed for the athlete to return to the straight-standing position. Since the backbend potentially puts the athlete at risk for head or neck injury, it is critical for a competent spotter to be present.

**Comments**

All limbering skills derive from the backbend in one way or another. Mastering more advanced skills such as the forward or backward walkover depend on how much emphasis is placed on developing proper bridge and backbend technique. Many of the top tumbling coaches agree on the necessity of developing proper flexibility in the back and shoulders. It is important to note that overtraining or improperly teaching limbering skills may actually decrease strength in the back and cause overuse injuries in young athletes.

**Variations**

- Bridge kickover
- Front limber
- Back walkover (Figure 10)
- Front walkover

**Table 7. Common errors and corrections on the backbend.**

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor bridge position</td>
<td>Lack of flexibility or strength in upper body</td>
<td>Shape athlete into proper bridge position; increase flexibility and strength drills</td>
</tr>
<tr>
<td>Collapsing on contact</td>
<td>Improper timing or lack of strength in upper body</td>
<td>Work on incline mat; spot or reinforce; hips must press forward</td>
</tr>
</tbody>
</table>

Figure 9. Limbering skills: the backbend

Figure 10. Back walkover.
THE FORWARD HANDSPRING

Figure 11. The forward handspring.

Description (Figure 11)
The take-off for the forward handspring combines the approach and hurdle of the running roundoff with the body positions of the handstand. After the stretched hurdle, the athlete should be instructed to stretch and lean forward into a handstand position. The athlete will then push forcefully from the mat with the front leg while aggressively kicking the rear leg back upward. For proper execution to take place the shoulder girdle should be completely extended before the hands make contact. As contact is made, the athlete’s shoulder girdle will depress and extend very rapidly in order to push from the mat. This extension combined with strong momentum into the skill will allow the athlete’s body to repulse or “block” from the mat and carry the athlete through the handstand position effectively with flight. The athlete will continue to rotate forward toward the two-footed landing position. The athlete’s body should remain stretched with the arms and legs straight and head lifted slightly upward. In order to absorb shock, rapid flexion then extension will take place in the knee and ankle joints upon landing.

Spotting
The forward handspring may be spotted in many ways. The most commonly used technique is for the spotter to stand to the side of the athlete at the onset of the skill. As the athlete inverts, the spotter will reach in with the hand nearest the athlete and grab the shoulder upper arms for support. The far hand will then reach in to support the athlete’s back and provide the additional support needed for the athlete to arrive in a proper landing position. This spotting technique is fairly advanced and will require a novice spotter to practice with a more advanced athlete to acquire the proper timing and strength needed.

Comments
The forward handspring is a difficult skill for any athlete to perform technically correct. For the athlete to be successful, repetition and feedback from the coach is necessary. It is imperative that the coaches not overlook the forward hand-spring and other forward tumbling skills in his/her lesson plans.

Variations
- Handspring stepout
- Two-foot forward handspring

Table 8. Common errors and corrections on the forward handspring.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bent arms during support phase</td>
<td>Improper take-off position; lack of strength</td>
<td>Shape athlete’s body into proper position at take-off; handstand hops</td>
</tr>
<tr>
<td>Athlete lands in squat</td>
<td>Insufficient momentum into skill, lack of repulsion from mat; athlete flexes at waist during flight phase; athlete drops chin down</td>
<td>Increase power and reinforce body shape at the beginning of the skill; increase strength in shoulders; drill the handstand fall flat to soft mat</td>
</tr>
<tr>
<td>Skill is crooked or twisted during flight phase</td>
<td>Usually the athlete places hands unevenly during support phase, or athlete does not keep arms straight and by the ears after push off</td>
<td>Re-shape athlete’s body during the presupport phase and possibly mark on mat where to place hands; when spotting, possibly hold athlete during the flight phase and allow him/her to fix arms</td>
</tr>
</tbody>
</table>
Description (Figure 12)

From a straight standing position with arms stretched overhead or down in front, the athlete will begin to fall slightly backward and swing arms slightly behind hips while simultaneously flexing at the knees and waist. As the legs extend and push from the mat, the hips, arms, upper back and shoulders will lift up/backwards to initiate rotation. It is critical at this point for a tremendous push from the legs to take place. During this flight phase a slight arch position is shown as the hands reach to make contact with the mat. As the athlete passes through the vertical handstand position the body shape will rapidly change to hollow. During the contact phase the arms are to be kept straight with hands facing forward. The head is in the neutral position. As the momentum continues, the legs will snap down toward the mat and the chest will begin to snap up.

Progressions
1. The athlete must first learn to fall backward without fear and in proper straight body position onto a soft mat or pit.
2. The athlete must then learn the proper timing of falling and flexing at knees and waist, then jumping up onto a raised soft surface and landing on the back, with hips extended.
3. The handstand snap-up is a critical progression for the athlete to master the post-handstand phase of the skill.
4. Proper strength and power training in the leg and upper body regions is necessary for the athlete to perform the back handspring safely and effectively.
5. Back handsprings performed down a wedge or on a trampoline/tumble tramp will allow the athlete to perfect technique with much less stress placed on the body.
6. The arm swing: Coaches may wish to teach the back handspring with or without an armswing on the take-off. When teaching the armswing, instruct the athlete to stand with arms stretched overhead or down in front. Then as the athlete begins to lean and sit backwards, the arms should swing aggressively down behind the athlete. The athlete should then swing the arms back up overhead as fast as possible while extending and jumping backward into the skill. It is critical for the athlete to master the timing of the arm swing before ever attempting the actual skill. The arms must return back to the stretched overhead position well before contact with the mat.

Spotting

When teaching the back handspring the instructor must realize the athlete could be in great danger if something goes wrong. Because of the nature of the skill (inverted and with flight), the athlete may be subjected to serious, possibly fatal injury. The spotter will be totally responsible for the athlete’s safety. Spotting the back handspring will require much strength and timing and should not be attempted by anyone who is not certified to do so. Spotters should be trained by certified instructors and then proceed to practice with skilled athletes to develop the proper timing. The spotter will position him/herself to the side of the athlete with the near hand resting behind the athlete’s thigh and the far hand placed on the athlete’s lower back. As the athlete jumps backward toward inversion, the spotter will support the athlete throughout the skill while simultaneously helping to lift the athlete’s legs over the head. The spotter must possess enough strength to ensure that there will be no chance of the athlete collapsing and possibly falling on his/her head or injuring an extremity.

Comments

The back handspring is the most difficult of all the basic tumbling skills covered in this manual. This skill should only be taught by a qualified instructor with the proper equipment. Correct progressions and strength development will alleviate, but not eliminate, the serious risks associated with this skill.

Variations
- Back handspring stepout
- Handstand snap-up/Back handspring
- Back handspring series
Table 9. Common errors and corrections on the back handspring.

<table>
<thead>
<tr>
<th><strong>Error</strong></th>
<th><strong>Cause</strong></th>
<th><strong>Correction</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Collapsing in support phase</td>
<td>Insufficient strength in shoulder region; lack of push from legs</td>
<td>Increase upper body strength training; perfect the backward jumping movement onto raised surface</td>
</tr>
<tr>
<td>Athlete “gainers” the back handspring (gainers=when backward rotating skills travel forward)</td>
<td>Athlete does not “fall back” into the jumping phase of skill</td>
<td>Work to improve take off and lean into jump</td>
</tr>
<tr>
<td>Lack of speed shown in skill; poor snap-up phase</td>
<td>Poor leg push; toes may be dragging</td>
<td>Increase power in backward jump; work on the timing of snap-up; correct any leg form problems</td>
</tr>
</tbody>
</table>
CHAPTER 42
TRAMPOLINE BASICS

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This chapter presents seven basic trampoline skills that diving coaches may consider incorporating into their divers’ dryland training program. These skills have application to takeoff control of the center of gravity on jumps, front and back dives and twists. All the skills are intended to be performed taking off and landing in the center of the trampoline bed i.e. on “the cross” and jump height is reduced to maintain control of the center of gravity over the base of support. The positioning of the instructor on the trampoline bed or frame pad with the beginner athlete, the use of the throw-in mat, and spotting landmarks are discussed. The progressions for all seven skills begin on a mat on the floor. The graphics show the proper positions at takeoff, flight and landing. Appropriate tightness of body, visual focus, body placement and skill emphasis are noted. Practical applications include progressions, skill variations and error corrections.

KEY CONCEPTS

1. On straight jumps, the coach should stand on the trampoline bed with the beginner athlete in order to help provide control or the coach should stand on the frame pad and be prepared to assist the athlete if trouble occurs.

2. On position jumps, the spotter stands to the side of the trampoline prepared to step in and assist the athlete in case of a problem or to stop the athlete in midair to shape the athlete into the proper position.

3. On jumps with twist, the coach stands on the frame pad of the trampoline when the beginner is first attempting the skill to step in if a problem occurs.

4. On the seat drop, the coach will stand to the side of the trampoline and be prepared to assist the athlete if needed. If it is necessary to hand spot the athlete due to the respective ability level the coach should stand behind the athlete and guide him/her through the movement with hand resting on upper back to block excessive backward rotation on takeoff.

5. On the hands and knee drop (HKD), using a throw-in safety mat is a good idea when the beginner is first attempting the hands and knee drop. The spotter should also be prepared to step in and assist the athlete if he/she creates an undesirable amount of forward rotation on the takeoff.

6. On the front drop, spotters should appreciate the risk of serious injury that could occur if the athlete creates an undesirable amount of forward rotation at the onset of the skill. Always use a throw-in safety mat and be prepared to hand spot the beginner athlete on this skill. It is possible to increase or decrease rotation of the skill by reaching and grasping the athlete after takeoff. This requires excellent timing and agility on the part of the spotter and should only be used when absolutely necessary.

7. On the back drop, the athlete should always be spotted by a competent, certified instructor on the first attempts. The spotter will stand on the bed to the side and slightly behind the athlete. The spotter places one hand on the athlete’s back and one and behind the thigh. As the athlete begins the skill, the spotter should control the amount of backward rotation that occurs.

BUILDING BLOCKS

This chapter provides a description, progressions, spotting, variations and error corrections for seven fundamental trampoline skills:

- Straight jumps
- Position jumps
- Jumps with twist
- Seat drop
- Hands and knee drop (HKD)
- Front drop
- Back drop
**THE STRAIGHT JUMP**

**Description** (Figure 1)  
The athlete will initiate the straight jump in the straight standing position with arms overhead. The athlete will then circle the arms down the sides while simultaneously flexing then extending at the knee and hip joints. This flexion is relatively small and the subsequent extension quick. As the athlete pushes from the bed and his/her body becomes airborne, the arms will continue to make a full circle, reaching full extension and holding at the top of the jump. As the athlete’s body descends, the arms will begin to circle down the sides again and the entire sequence is repeated. It is important the athlete maintain a stretched body shape throughout the entire airborne phase.

**Progressions**
1. Straight jump without arm swing on the floor
2. Straight jumps on floor with arm circles
3. Teach entire sequence on floor first
4. Straight jumps with arms static in various positions on tramp

**Spotting**
The coach should stand on the trampoline bed with the beginner athlete in order to help provide control or the coach should stand on the frame pad and be prepared to assist the athlete if trouble occurs.

**Variations** (Figure 2)
- Jump with arms down (a)
- Jump with arms horizontal in the front (b)
- Jump with arms to form a "T" (c)
- Jump with arms up (d)

**Comments**
It is important for the coach to remember that proper technique and continual repetition of the straight jump will enable the athlete to realize his/her potential on other skills at a much faster rate. When teaching athletes how to jump remember to emphasize control instead of height, stressing the important of staying in the center of the trampoline and continually correcting body shapes and arm positions. Remind athletes to point the toes, keep the legs straight and the eyes focused on the end of the trampoline bed.

**Error**
- Athlete travels forward and backward on the trampoline  
- Athlete travels from side to side on the trampoline
- Athlete cannot maintain body shape while airborne

**Cause**
- Athlete may be jumping too high; head may be leaning forward; center of gravity is not over base of support
- Probably a result of jumping too high; feet not landing together on the bed
- Incorrect arm swing; jumping too high to maintain control; lack of body tightness

**Correction**
- Reduce height; instruct athlete to pull upwards keeping body in a tight vertical line over feet; head should be pulled back so ears are over shoulders
- Reduce height; have athlete practice arm circles on the floor; practice jumping with feet hip width apart on floor
- Reinforce symmetrical use of arm swing through to full body extension; practice tight body on floor

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**Figure 1.** The straight jump.

**Figure 2.** The straight jump variations.

**Table 1.** Common errors and corrections on the straight jump.
THE POSITION JUMP

Figure 3. The position jump.

**Description**  (Figure 3)
The basic positions in diving, tuck, pike and straight, are shown on trampoline when the athlete is airborne. All position jumps come from the same basic take-off as the straight jump and are always foot-to-foot skills. It is important for the athlete to show the proper position at the highest point of the jump and to extend smoothly from that position back to the straight body position well before making contact with bed. Figure 15 shows the correct positions and timing of the tuck jump.

**Spotting**
Coaches may spot position jumps for two reasons. The first and most important is for safety. This is accomplished by the spotter standing to the side of the trampoline and being prepared to step in and assist the athlete in case of a problem.

The second reason for a coach to spot an athlete on a position jump is the need of the athlete to be shaped into the proper position. A coach may need to actually stop the athlete midair and help to shape their body into the desired position.

**Progressions**
1. Correct static positions on floor
2. Position jumps on floor
3. Small position jumps from a low bounce or stop

**Comments**
The position jumps are considered by many to be the core of lower level trampoline routines that sets up the more difficult drop skills. Position jumps also reinforce the desired shapes needed for somersaulting skills. When performing position jumps, athletes should be instructed to keep their arms and hands close to the body whenever possible. Giving the arms and hands a specific place to be in each phase will help accomplish this.

**Variation/Combinations**
- Position jumps alternated with straight jumps
- Position jumps in a series
- Tuck/ Pike/ Straight combinations

Table 2. Common errors and corrections on position jumps.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete travels around the trampoline</td>
<td>Force from trampoline not being directed vertically</td>
<td>Reinforce straight jump technique; instruct athlete to perform position at top of jump</td>
</tr>
<tr>
<td>Falling to seat/back</td>
<td>Center of gravity not over balls of feet; improper take-off or landing</td>
<td>Perform position jumps from low height; head should be pulled back so ears are over shoulders</td>
</tr>
<tr>
<td>Falling forward</td>
<td>Center of gravity not over balls of feet; incorrect body shape on takeoff</td>
<td>Perform position jumps from low height; head should be pulled back so ears are over shoulders</td>
</tr>
</tbody>
</table>
JUMPS WITH TWISTS

Description (Figure 4)
The straight jump with twisting around the longitudinal axis is another foot-to-foot skill which needs to be mastered by all beginner athletes. The takeoff for this skill is similar to that of the normal straight jump. Although twisting during the straight jump is actually initiated from the surface of the trampoline, correct technique will result in the twists appearing to be done while completely airborne. As the athlete pushes from the bed and raises the arms to just above horizontal, the athlete will proceed to turn the shoulders in one direction. Pushing against the surface of the trampoline will inhibit the remainder of the body from twisting in the opposite direction. Once the body is airborne the athlete will continue to bring arms across the chest or above the head to complete the desired amount of twisting. In order to stop the twist, the athlete will open up the arms and return them to a more horizontal position.

Progressions
1. Straight jumps with arms horizontal
2. Jumps with 90, 180 and 360 degrees of twisting on floor

Spotting
The coach will stand on the frame pad of the trampoline when the beginner athlete is first attempting the skill. A competent spotter will always be prepared to step in if a problem occurs.

Comments
Twisting jumps at this level should be learned in both directions. Good twisting mechanics taught in the early stages of learning will enable the athlete to achieve more desirable twisting mechanics in somersaults later on. It is also imperative at this point to determine the athlete’s dominate twisting direction and record it for future reference.

Variations
- Jump with 1/2 twist (180 degrees)
- Jump with full twist (360 degrees)

Table 3. Common errors and corrections on jumps with twists.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete does not complete desired amount of twist</td>
<td>Arms were pulled in or released at an undesirable rate or degree</td>
<td>Repetition and instruction from coach pertaining to correct arm position</td>
</tr>
<tr>
<td>Athlete lands on one leg</td>
<td>Asymmetrical arm movements; athlete may be leaning, arching or dropping a shoulder on takeoff</td>
<td>Keep arms symmetrical on takeoff; instruct athlete to keep arms vertical and reach upward on takeoff</td>
</tr>
<tr>
<td>Athlete deviates from the center of the trampoline</td>
<td>Force from trampoline not being directed vertically; improper body shape during bed contact</td>
<td>Review straight jump technique; instruct athlete to keep a focal point</td>
</tr>
<tr>
<td>Athlete falls forward or backward on landing</td>
<td>Improper takeoff; leaning forward, backward or arching</td>
<td>Work on straight jump technique and proper takeoff into jump</td>
</tr>
</tbody>
</table>
Description (Figure 5)

From a straight standing position, the athlete will circle the arms down backward and initiate the takeoff for the straight jump. As the athlete leaves the trampoline the arms will reach upward to the overhead position with fully extended body rotating very slowly backward. As the body begins to descend, the athlete will lift the toes slightly upward by flexing at the hip. If the athlete points the toes toward the end of the trampoline, the athlete should arrive in the seated position with legs straight and horizontal. The athlete’s eyes will be looking forward just over the pointed toes and hands will be placed one to two inches behind the hips with fingers together and pointed forward. The athlete should be instructed to flex slightly at the elbows as contact with the bed occurs. As the bed begins to rise, the elbows will extend and the hands will push from the trampoline. The athlete’s body will extend at the hips upon return to the straight standing position and continue on with a straight jump.

Progressions

1. Position athlete on mat on floor in proper seat drop
2. From a stand, teach seat drop on a skill cushion.
3. Teach the seat drop from standing position
4. Teach the seat drop from one, small jump
5. Slowly progress to several small jumps before seat drop
6. Bouncing on seat in proper position

Table 4. Common errors and corrections on the seat drop.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete lands on heels first then slides to seat</td>
<td>Athlete is usually fearful of falling to seat; shows limited flexion of hips on the descent</td>
<td>Point toes toward end of trampoline on descent</td>
</tr>
<tr>
<td>Athlete lands on seat with heels off bed</td>
<td>Athlete flexes at hips too much on takeoff, creating too much backward rotation on takeoff</td>
<td>Pike as the body descends; point toes toward end of trampoline; train skill on a skill cushion mat on the floor</td>
</tr>
<tr>
<td>Athlete lands in deep pike</td>
<td>Athlete is probably placing hands next to thighs or knees and not showing backward rotation on takeoff</td>
<td>Correct hand placement; instruct athlete to lean backward slightly on decent (spot)</td>
</tr>
<tr>
<td>Athlete cannot stand up from seat</td>
<td>Athlete is probably not pushing from bed or unwilling to extend and rotate forward</td>
<td>Coach may stand in front of tramp and ask the athlete to reach for them; reinforce correct flexion and extension phase of elbows and hips</td>
</tr>
<tr>
<td>Athlete injures wrist or elbows</td>
<td>Hand placement on contact is incorrect; elbow not bent</td>
<td>Land with fingers pointing toward toes and hands beside the hips</td>
</tr>
</tbody>
</table>

Spotting

The coach will stand to the side of the trampoline and be prepared to assist the athlete if needed. If it is necessary to hand spot the athlete due to the respective ability level, the coach should stand behind the athlete and guide him/her through the movement with hand resting on upper back to prevent too much backward rotation on takeoff.

Comments

The seat drop is the lead up skill to more advanced combinations such as the seat 1/2 twist feet and the seat 1/2 twist seat (swivel hip). These skills will be accomplished quite easily when emphasizing proper technique on the seat drop and using the following progressions (listed below):

Variations/Combinations

- Seat drop with stretch in the ascent
- Seat drops in series
- Seat drop 1/2 twist to feet
- 1/2 twist to seat drop
- Seat drop 1/2 twist feet, immediate seat drop
- Seat drop 1/2 twist to immediate seat drop (swivel hips, Figure 6)

Figure 6. Swivel hips.
THE HANDS AND KNEE DROP

Description (Figure 7)

The hand and knee drop (HKD) is initiated with the athlete in the straight standing position with arms stretched overhead. As the athlete pushes from the trampoline the hips will lift upward and flex. The athlete will produce a slight forward rotation from the backward leg kick. Once the athlete is airborne, flexion will take place at the knees and shoulders. This action will allow the athlete to drop to the bed in a catlike or “table” position. Upon contact with the bed the weight should be evenly distributed with elbows slightly bent. The athlete should be instructed not to sit back on the heels. As the bed begins to ascend, the athlete will rotate back upward and return to the straight standing position. During this skill, the athlete should not travel from the cross.

Spotting

It is a good idea to use the throw-in safety mat when the beginner athlete is first attempting the hands and knee drop. The spotter should also be prepared to step in and assist the athlete if he/she creates an undesirable amount of forward rotation on the takeoff.

Comments

Proper execution and continual repetition of the hand and knee drop will result in producing technically correct, safe front drops. The hand and knee drop is also an excellent lead up for other skills such as the roller and front drop/back drop combinations. It is also important to remember this skill has replaced the knee drop in all good trampoline progressions. The knee drop without the use of hands is NOT SAFE at this level.

Variations/Drills

- HKD to seat drop
- HKD to front drop
- Seat drop to HKD

Projections

1. Position athlete into desired table position on floor on mat
2. Execute the HKD drop from a squat position on mat on floor
3. Execute the HKD drop from a squat position on mat on tramp
4. Execute the HKD from a squat on the tramp
5. Execute the HKD from a stand on the tramp
6. Bouncing in the HKD drop position

Table 5. Common errors and corrections on the hands and knee drop.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete travels forward</td>
<td>Athlete leans forward on takeoff</td>
<td>Instruct athlete to lift hips and legs up on takeoff</td>
</tr>
<tr>
<td>Athlete lands sitting on heels</td>
<td>Athlete is relaxing too much in hip flexor area; possibly lacks rotation on takeoff</td>
<td>Reinforce position on floor; instruct athlete to make sure hands and feet are in each quadrant on cross</td>
</tr>
<tr>
<td>Athlete lands on hands first</td>
<td>Takeoff has too much forward rotation</td>
<td>Instruct athlete not to drop chest or lift hips too much</td>
</tr>
<tr>
<td>Athlete lands on knees first</td>
<td>Skill has insufficient forward rotation</td>
<td>Create more forward rotation by more aggressively lifting hips and legs</td>
</tr>
</tbody>
</table>

Figure 7. The hands and knee drop.
Chapter 42  Trampoline Basics

Description (Figure 8)

The takeoff for the front drop is identical to the takeoff for the hands and knee drop. Once the body is airborne the athlete will begin to extend the hip flexors while keeping the legs straight. As the body descends, the athlete will flex elbows and bring hands into the chest to prepare for contact with the trampoline bed. Prior to landing, the athlete will show a tiny flexion at the hips. The athlete’s midsection should make contact with the bed where the feet originally began. The athlete’s knees will flex to approximately 90 degrees upon contact. The proper body position on contact will include having the arms folded in front of face with hands 1” in front of the mouth. In order to avoid scrapping the elbows, the athlete should be instructed to keep the forearms flat to the bed with the elbows pointing outward. As the bed begins to ascend, the athlete will rotate up/backward while simultaneously pushing from the bed and extending at the knees. The athlete will continue until arriving in the straight standing position and prepare for another bounce.

Spotting

The front drop should be treated with caution and respect. Serious injury could occur if the athlete creates an undesirable amount of forward rotation at the onset of the skill. Always use the throw-in safety mat and be prepare to hand spot the athlete on this skill. It is possible to increase or decrease the amount of forward rotation of the skill reaching and grasping the athlete after takeoff. This requires excellent timing and agility on the part of the spotter and should only be used when absolutely necessary.

Comments

Proper progression and correct technical instruction will result in success when coaches attempt to teach the front drop. The front drop will later be used as a progression for skills such as the 1/2 airplane, the cruise, and eventually the 3/4 back cody. Most beginner level routines will include front drops and their variations.

Variations/Drills

- Front drops in a series
- Front drop to seat drop
- Seat drop to front drop
- 1/2 twist to front drop
- Front drop to back drop
- Back drop to front drop

Table 6. Common errors and corrections on the front drop.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete lands on chest first</td>
<td>Too much forward rotation created on takeoff</td>
<td>Instruct the athlete to lift legs less aggressively on takeoff; emphasize need to place the belly button on cross</td>
</tr>
<tr>
<td>Athlete lands on knees and slides onto chest</td>
<td>Not enough forward rotation created on takeoff</td>
<td>Instruct the athlete to lift legs more aggressively on takeoff; emphasize need to place belly button on cross</td>
</tr>
<tr>
<td>Athlete cannot stand up from the front drop position</td>
<td>Insufficient backward rotation</td>
<td>Extend lower leg fully on ascent from skill; use arms to push from bed and lift chest</td>
</tr>
</tbody>
</table>
THE BACK DROP

Description (Figure 9)

The back drop is initiated from the straight standing positions with arms overhead. As the athlete begins to push from the bed, a slight arch in the back as the athlete begins to stretch upward will result in the necessary backward motion. Once the body is airborne, the athlete will flex at the hips and lift the feet upward. It is important during this phase to keep the head neutral and look toward the end of the tramp and toes. During the descent the athlete will prepare to land with his/her back flush with the bed. The legs are straight and at a 45-90 degree angle to the torso. The arms are straight and overhead at a 45-90 degree angle. The head is neutral with neck muscles contracted. Extending the hips as the bed begins to rise will create the forward motion needed to bring the athlete back into the upright position.

Spotting

Athlete should always be spotted by a competent, certified instructor on the first attempts at a back drop. The spotter will stand on the bed to the side and slightly behind the athlete. The spotter will place one hand on the athlete’s back and one hand behind the thigh. As the athlete begins the skill, the spotter should control the amount of backward rotation that occurs.

Comments

The back drop is the most dangerous and difficult of all the basic drop skills. Great care and concern are needed to effectively teach the back drop safely. Once an efficient back drop is learned, athletes will be prepared to learn more advanced combinations such as the cradle, the cat twist, and the pullover.

Variations/Drills

- Back drop, feet, seat drop, feet, back drop, feet
- Back drops in series
- Back drop to front drop
- Front drop to back drop
- Back drop 1/2 twist to feet
- 1/2 twist to back drop
- Back drop to flat back

Table 7. Common errors and corrections on the back drop.

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lands in seat then falls to back</td>
<td>Fear of falling back; insufficient rotation on takeoff</td>
<td>Have athlete work on falling onto soft mat; instruct the athlete to lift the hips more on take-off</td>
</tr>
<tr>
<td>Athlete lands too far up on upper back or shoulders</td>
<td>Athlete has created too much rotation by overflexing hips at takeoff</td>
<td>Reinforce proper landing on mat on floor; hand spot and step back in the learning process for safety</td>
</tr>
<tr>
<td>Athlete lands on flat back</td>
<td>Insufficient flexion at hip joint</td>
<td>Repeat takeoff procedures and hand spot to shape the athlete’s body into desired position</td>
</tr>
</tbody>
</table>

Figure 9. The back drop.