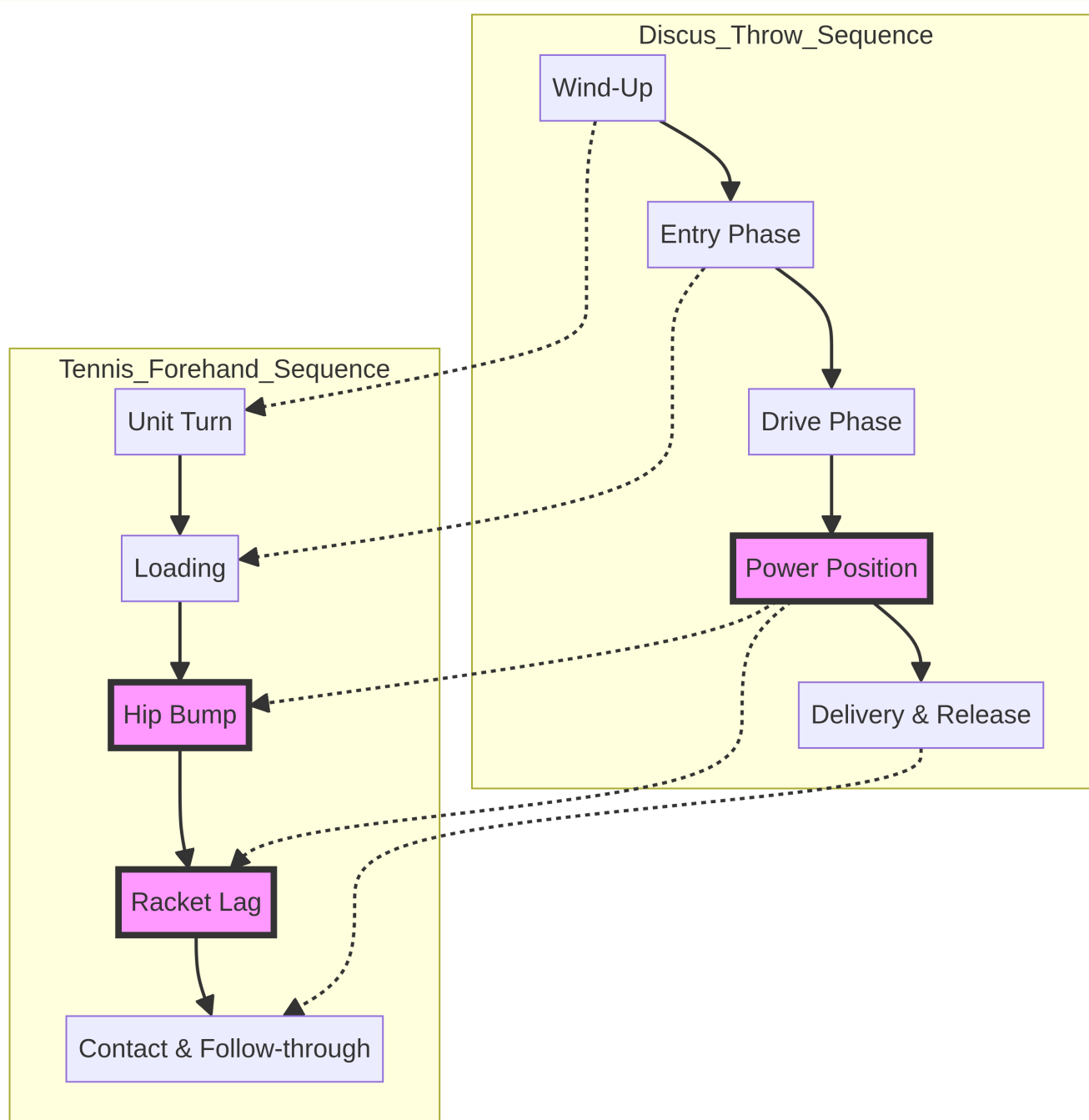


Visual Coaching Library

Topic: biomechanics

4 cards · 5 practical instructions per card



The Mechanics of Modern Tennis (Overview)

The Mechanics of Modern Tennis (Overview)

English:

1. Keep the head still, relax the muscles, fix the gaze on the ball through contact.
2. Use the VOR (Vestibulo-Ocular Reflex) — let the cervical spine and inner ear stabilize the gaze.
3. Reprogram the Eyes → Brain → Central Nervous System flow with consistent practice.
4. Gaze → Critical Moment → Data → Transcendent Ball Prediction — feel the ball, don't think.
5. Re-establish the ball-observation system daily: 5 minutes of focused tracking before play.

Tiếng Việt:

1. Giữ đầu yên, thả lỏng cơ, cố định ánh mắt trên bóng qua tiếp xúc.
2. Dùng VOR (Vestibulo-Ocular Reflex) — để cổ và tai trong ổn định ánh mắt.
3. Lập trình lại dòng Mắt → Não → Hệ Thần Kinh Trung Ương với tập nhất quán.
4. Gaze → Khoảnh Khắc Quan Trọng → Dữ Liệu → Dự Đoán Bóng Siêu Việt — cảm bóng, đừng nghĩ.
5. Tái lập hệ quan sát bóng hàng ngày: 5 phút tập trung theo dõi trước khi chơi.

THE TENNIS KINEMATIC CHAIN

SEQUENTIAL ENERGY TRANSFER FOR MAXIMUM POWER

- 7 WRIST & RACKET HEAD**
Wrist snap and racket lag release transfer energy to the ball for maximum speed.
- 6 ELBOW EXTENSION**
Elbow extends and accelerates the forearm into the ball.
- 5 SHOULDER ROTATION**
Shoulder internally rotates, accelerating the arm.
- 4 TORSO COIL & UNCOIL**
Torso rotates from a coiled position, transferring energy from lower body to upper body.
- 3 HIP ROTATION**
Hips rotate toward the target, driving the kinetic chain upward.
- 2 LEG DRIVE**
Legs extend and drive force upward through the body.
- 1 GROUND REACTION FORCE**
Force generated into the ground creates the foundation for all upward motion.



**POWER ISN'T MUSCLE.
IT'S SEQUENCE.**

The kinetic chain works like a whip—each segment accelerates the next, culminating in explosive racket head speed.

Tension integrity

Tension integrity

English:

1. Tennis is played on a 2D court but won in 3D space — think of the body as a 3D chain.
2. GRF (Ground Reaction Force) flows from the ground up: feet → legs → hips → torso → arms → racket.
3. SSC (Stretch-Shorten Cycle) — the body stores elastic energy in the load phase, releases in the swing.
4. Core is the agentic hub — every segment rotation passes through the trunk.
5. Modern tennis is embodied tennis: connect every segment, do not isolate parts.

Tiếng Việt:

1. Tennis chơi trên sân 2D nhưng thắng trong không gian 3D — nghĩ cơ thể là chuỗi 3D.
2. GRF (Lực Phản Ứng Mặt Đất) chảy từ đất lên: chân → đùi → hông → thân → tay → vợt.
3. SSC (Chu Trình Kéo-Ngắn) — cơ thể tích năng lượng đàn hồi khi nạp, giải phóng khi vung.
4. Core là hub agentic — mọi xoay phân đoạn đều đi qua thân.
5. Tennis hiện đại là tennis nhập thể: kết nối mọi phân đoạn, không cô lập phần.

Hubert Hurkacz: Lợi thế khung thân dài

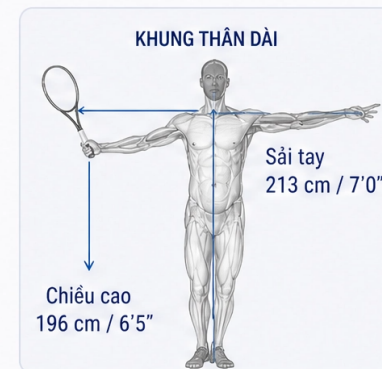


1 Chuẩn bị vững chắc

Tung bóng cao
~3.2 m
(10'6")

2 Vị trí Trophy hoàn hảo

3 Bùng nổ theo chiều dọc



SỨC MẠNH SINH HỌC TỪ ĐỘ DÀI

- Thời gian tiếp xúc lâu hơn
- Đòn bẩy lớn hơn
- Quỹ đạo bóng cao hơn, góc dốc hơn
- Hiệu suất truyền năng lượng cao hơn

← CHUỖI CHUYỂN ĐỘNG LIÊN MẠCH. MỘT HỆ THỐNG ĐỒNG BỘ. →

Serve - Controlled falling (kinetic chain)

Serve - Controlled falling (kinetic chain)

English:

1. Tension is the engine, not the enemy — connected tension is ready tension.
2. Load before launch: store elastic energy in the body before initiating the swing.
3. Core = the tension hub — every other segment receives from the trunk.
4. Do not collapse between shots — maintain connected tension throughout the rally.
5. Release at contact, reload immediately — tension is dynamic, not static.

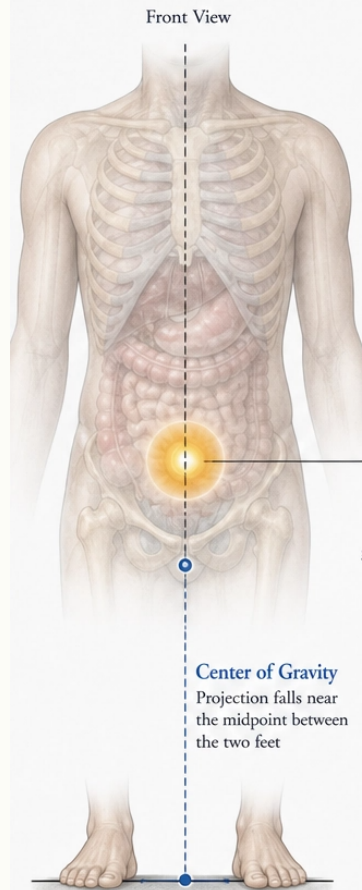
Tiếng Việt:

1. Căng là động cơ, không phải kẻ thù — căng kết nối là căng sẵn sàng.
2. Nạp trước khi phóng: tích năng lượng đàn hồi trong cơ thể trước khi bắt đầu vung.
3. Core = hub căng — mọi phân đoạn khác nhận từ thân.
4. Đừng xẹp giữa các cú — duy trì căng kết nối suốt rally.
5. Giải phóng ở tiếp xúc, nạp lại ngay — căng là động, không phải tĩnh.

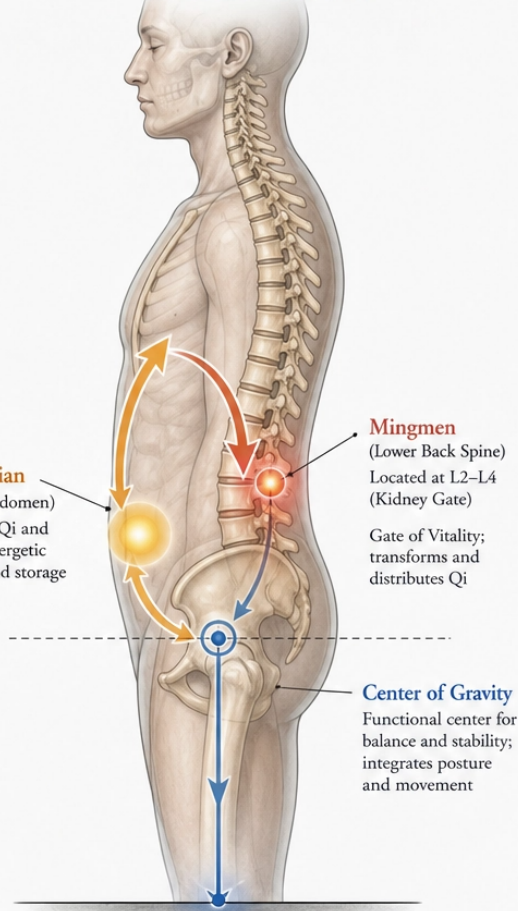
DANTIAN, MINGMEN, AND CENTER OF GRAVITY

INTERNAL RELATIONSHIP, ENERGY FLOW, AND PRESSURE MODULATION

1. ANATOMICAL LOCATIONS



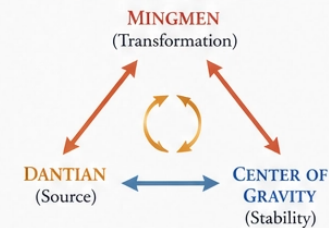
2. SIDE (SAGITTAL) VIEW



3. ENERGY FLOW AND PRESSURE MODULATION

- Upward Flow (Front Channel)**
Qi rises from Dantian along the front body to support expansion, posture, and function.
- Downward Flow (Back Channel)**
Qi descends from Mingmen down the back to the Dantian and legs, enhancing rooting and structural support.
- Circulating Flow**
Dantian and Mingmen form a dynamic loop for refining, balancing, and sustaining Qi.
- Grounding Force**
Center of Gravity connects to the ground; stabilizes the structure and regulates pressure in the body.

4. FUNCTIONAL RELATIONSHIP



The three centers work as an integrated system to generate power, maintain balance, and coordinate movement.

5. BIOMECHANICAL INTEGRATION

- Dantian provides internal pressure and core stability through abdominal tone and diaphragmatic regulation.
- Mingmen supports spinal integrity and governs the transformation and distribution of vital energy.
- Center of Gravity alignment optimizes load distribution, postural efficiency, and movement economy.
- Proper coordination of the three centers enables effortless power, balance, and resilience.

Maintaining connection among Dantian, Mingmen, and Center of Gravity allows for harmonious flow of Qi and efficient biomechanical function.

Note: *cun* is a traditional body measurement: 1 *cun* = the width of the practitioner's thumb.
(Presented for educational and illustrative purposes.)

forehand 5-phase biomechanics (Dantian + frisbee analogy)

English:

1. Drop into the slot — do not reach for the ball, let the racket pull the chest down.
2. Catch the racket at the bottom of the fall — the weight pulls the arm into pronation.
3. The fall is where energy lives — heavy weight, gravity, free acceleration.
4. Chest compression at the bottom of the slot — torso is fully engaged.
5. Then extend up: legs drive, hip opens, shoulder whips, racket head accelerates into ball.

Tiếng Việt:

1. Rơi vào slot — đừng với lấy bóng, để vợt kéo ngực xuống.
2. Bắt vợt ở đáy cú rơi — sức nặng kéo tay vào pronation.
3. Cú rơi là nơi năng lượng sống — nặng, trọng lực, tăng tốc tự do.
4. Nén ngực ở đáy slot — thân đã gài hoàn toàn.
5. Rồi duỗi lên: chân đẩy, hông mở, vai quất, đầu vợt tăng tốc vào bóng.